ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

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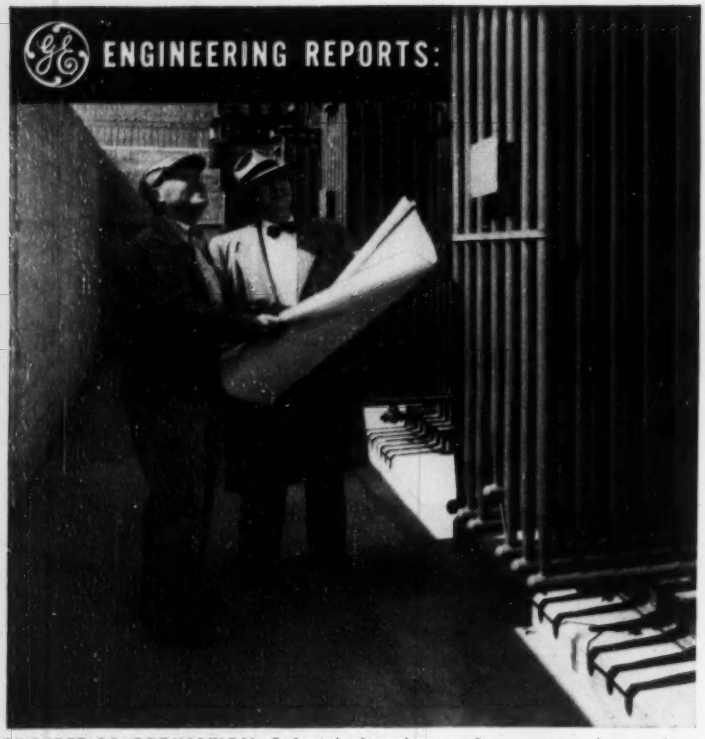
ENGINEERING REPORTS:



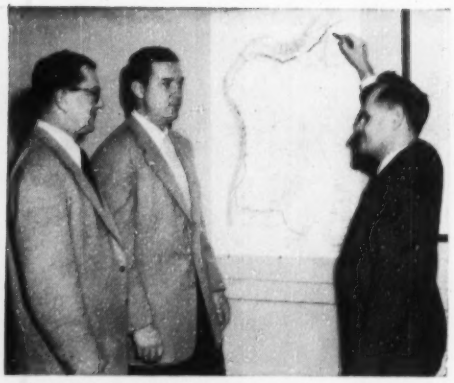
PROJECT CO-ORDINATION of electrical equipment for new pumping stations was handled by D. H. Bixby (right) of G.E.'s Louisville office, working with J. C. Jones, field supt., Central Contracting Co., and Marine Electric Co.

G-E engineering service helps speed Louisville flood control

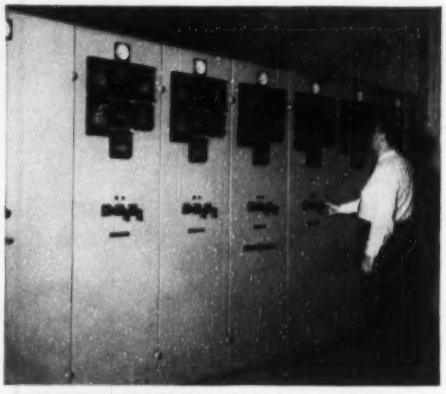
Expedites construction of 4 pumping stations by prompt delivery of all G-E equipment

In the $24,475,000 Louisville flood control project of the U.S. Army Corps of Engineers, General Electric project co-ordination service, in addition to application engineering, played an important part Through this service, all G-E power distribution equipment ordered for four of the project's pumping stations was delivered either on or ahead of schedule. This helped the electrical contractors, Marine Electric Co., and the general contractors, Central Contracting Co., to work at top efficiency, expedited construction, and earned the praise of both the Army engineers and contractors.

G-E equipment, backed by G-E engineering services, can pay off on *your* heavy construction projects. Learn how by contacting your nearest G-E Apparatus Sales Office. General Electric Company, Schenectady 5, New York. 064-32



ENGINEERING ASSISTANCE on the project was made available to U.S. Army engineers through F. G. Perkins (center), G-E sales engineer.



COMPLETE CONTROL of Shawnee station is provided by G-E 2400-v metal-clad switchgear consisting of 6 circuit breaker feeder sections.

INCREASED PROTECTION at the project's 34th St. pumping station is provided by 480-v G-E switchgear with 6 drawout air circuit breakers.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

14-ACRE, ALL-CONCRETE STRUCTURE COMPLETED AHEAD OF SCHEDULE

Utilizing today's high-speed concreting methods, the tremendous new Army Finance Center at Fort Benjamin Harrison, near Indianapolis, second in size only to Washington's Pentagon Building, was completed ahead of schedule.

Concrete for the 3-story, flat-slab structure, containing 1¼ million sq ft of floor space, was placed at a rate of a cu yd per min. Bethlehem supplied the 6000 tons of reinforcing bars required.

Bethlehem has had years of experience in furnishing reinforcing steel for contractors. Bars are shipped completely fabricated from whichever of our eleven bar fabricating shops is nearest your job site.

And you can be sure that your reinforcing bars will reach the job site on time if you buy from Bethlehem. From the start of placing plans to delivery, Bethlehem gives you quick service. Bars reach you promptly, bundled and tagged, and ready for placing.

Bethlehem Bars are made from new-billet steel to ASTM Specification A-15 and with deformations which meet ASTM Specification A-305.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Bars are completely fabricated at Bethlehem's 11 bar fabricating shops and shipped, bundled and tagged, ready for placing.

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BETHLEHEM STEEL

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WILD N-III
PRECISION
LEVEL

with tilting screw, coincidence level and optical micrometer.

The world's best and most accurate level. For first order geodetic leveling, bridge construction, deflection and settlement studies, mounting of large machinery, jig and alignment work.

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Publisher

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reduced to $16.32

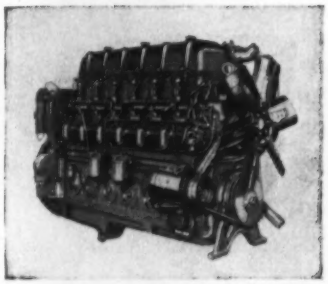
We can't sell you just one. We will sell you 30 to 255 "horses" at the lowest price you can buy diesel power: $16.32 a horsepower for the 6-cylinder model.

If you know diesel, you know there is nothing else like it. A diesel will take on any job you might give to a gasoline engine — and do it for one-third the cost. Not only that, it is simpler to maintain.

Buyers no longer ask *whether* diesel but *which* diesel. Which will deliver the most horsepower for the money? The most horsepower per pound of weight? Which is the easiest to service?

All three questions have one answer: *the P&H Diesel.*

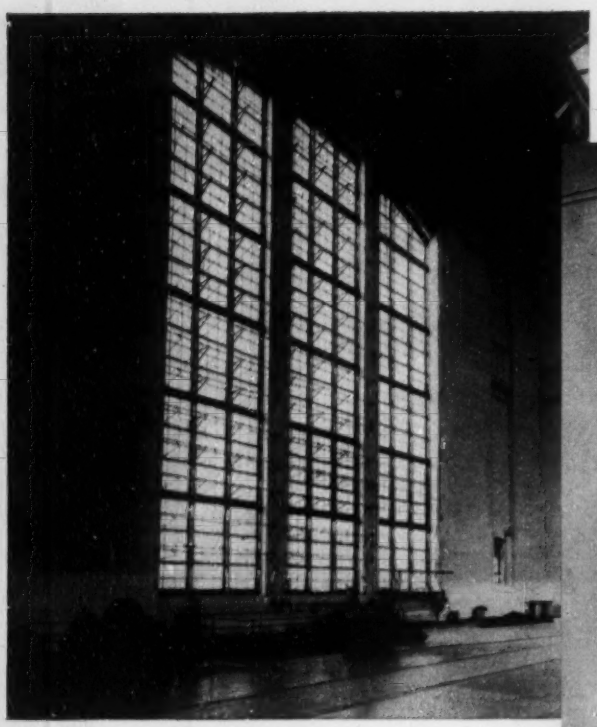
P&H Diesel Engine Division, Harnischfeger Corporation, Crystal Lake, Ill.



Horsepowers, 30 to 255. Two-cycle. 2, 3, 4, 6-cylinder models. Speeds to 1800 rpm. Stationary, mobile, marine. Diesel-generator sets

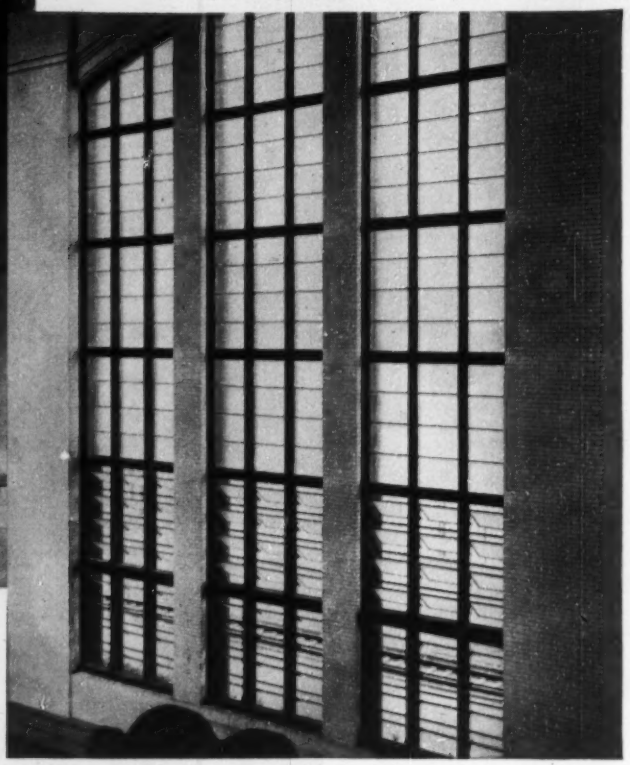
THE P&H DIESEL

lowest price per horsepower . . .
lowest weight per horsepower



BEFORE: Pivoted windows, with applied operator equipment on inner wall. Ventilator operation was inefficient; glass breakage and maintenance demands were severe.

AFTER: Truscon Donovan Windows, replacing older pivoted windows, provide trouble-free ventilator operation and improved appearance. Note simple, concealed operators.



TRUSCON DONOVAN WINDOWS

Solve A Power Plant Pressure Problem

Power plants have special window problems. Equipment operates at high pressure. Burners gulp great amounts of air. Because of rapid air consumption, pressure variations occur. Windows must open and close rapidly to compensate.

This station formerly was equipped with pivoted windows. But, operator arms had largely failed. Ventilator control was lost. The solution was a new installation of Truscon Donovan Steel Windows.

Now, they can open and close ventilators rapidly and simultaneously. Air pressure is more precisely controlled. Operators are completely concealed and protected against possible corrosion. Maintenance is substantially reduced.

These are large window openings. Subject to heavy windload. Rigid, heavy sections are needed to resist bending under wind pressure and protect against glass breakage. Truscon Donovan Windows have that needed strength of section.

What large-area window problems do you have? Using Truscon Donovan Steel Windows you can group great expanses of ventilators in attractive interior and exterior building elevations. Truscon window engineers will help you design specific applications. Write:

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REPUBLIC STEEL
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Export Dept: Chrysler Bldg., New York 17, N.Y.

TRUSCON MARK OF MERIT PRODUCTS

REPUBLIC STEEL

A NAME YOU CAN BUILD ON

B.F.Goodrich

All-nylon tires end tire failures for rock products company

TRACY Rock and Gravel Company trucks are scheduled to make the round trip between quarry and crusher in 8 minutes. Such close timing is necessary so that this Tracy, Calif., firm can keep its output up to the demands of the construction industry. Setting the pace is one thing, maintaining it another.

Tires broke and treads separated under 30-ton payloads. Some tires lasted only 100 hours. Valuable time was lost. Maintenance costs soared. But B. F. Goodrich *all-nylon* tires solved these serious problems, Chief Mechanic W. S. Floyd reports. After 2 years on the job, "they've never been off the rims!"

Nylon is stronger than ordinary cord materials, can withstand double the impact. *All-nylon* tires last far, far longer, put an end to premature tire failures.

Tracy uses *all-nylon* Super Traction tires because the wide tread gives greater flotation. The *all-nylon* Universal tread gives full traction in forward or reverse. And the *all-nylon* Rock Logger tire resists rock cuts.

B. F. Goodrich *all-nylon* tires will work for you as they have for the Tracy Company. (Rayon construction at lower prices.) See your B. F. Goodrich retailer today. His address is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, Ohio.*

Specify B. F. Goodrich tires when ordering new equipment

ALL-NYLON SUPER TRACTION tires pull through grueling time schedule under 41-ton gross weight.

UNIVERSAL TREAD guards against dangerous slippage, keeps trucks moving. Maintenance costs are cut.

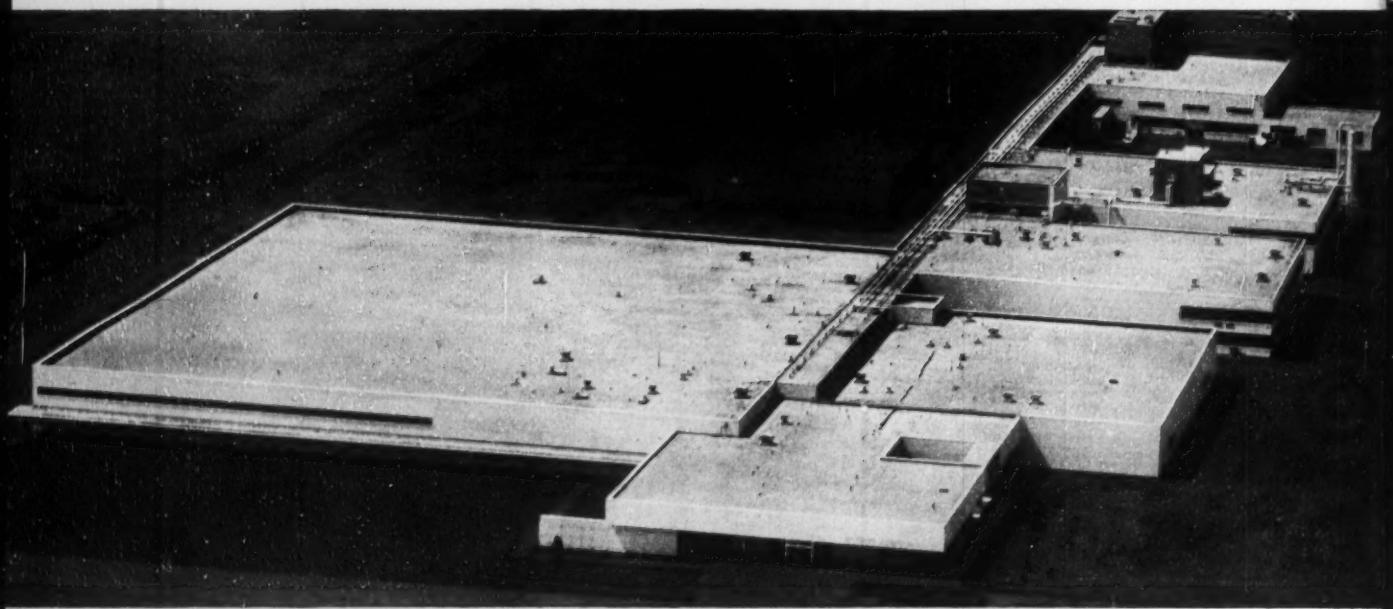
RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

PYROFILL*

INCOMBUSTIBLE GYPSUM

roof decks fear no fire!

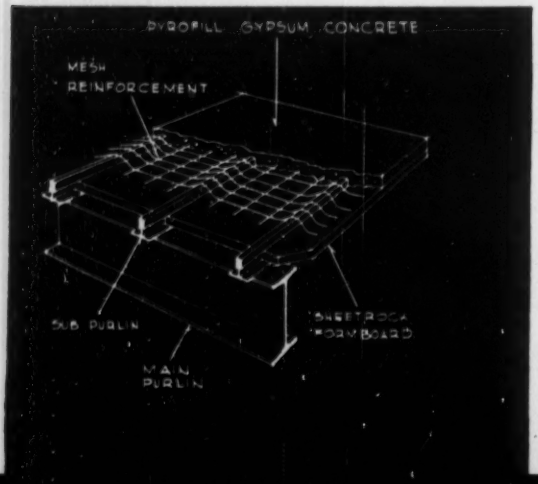
Armour & Co. Laboratories, Kankakee, Illinois
Architects: Holabird & Root & Burgee
Contractor: George A. Fuller Company
PYROFILL Contractor: Anning-Johnson Company, Inc.



PYROFILL Roof Decks are adaptable!

PYROFILL Roof Decks offer broad flexibility to the architect or structural designer. They adapt readily to flat, curved or pitched roofs, and are suitable for industrial, commercial or institutional buildings. Exacting insulation or acoustical requirements can be met by varying the type of formboards, SHEETROCK*, USG* Insulation or USG* Acoustical formboards.

*T. M. REG. U.S. PAT. OFF



Other outstanding advantages:

INCOMBUSTIBLE... PYROFILL will not burn because it's formulated from fireproof gypsum—often produces insurance savings of 30% compared with combustible construction.

LOW COST... PYROFILL is poured over permanent formboards; is sold in place at amazingly low unit cost.

FAST INSTALLATION... a single crew often pours more than 20,000, sometimes as much as 30,000 sq. ft. a day—ready for the roof covering.

LIGHTWEIGHT... only 10 to 12 lbs. per sq. ft. in place, permitting important savings in structural steel.

STRONG, DURABLE... a factor of safety of 10 or more under normal roof loads. PYROFILL Decks erected over 30 years ago are still giving excellent service.

FOR FURTHER INFORMATION, contact the authorized PYROFILL contractor in your area, or write Dept. ENR-2, 300 West Adams St., Chicago 6.

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the greatest name in building

USG
UNITED STATES GYPSUM

A pipe dream come true!

Made in pre-formed sections, new Fiberglas Low Pressure Pipe Insulation is easily and economically applied. Comes in sizes to fit standard pipe up to 12", all copper tubing up to 3" in diameter. Suitable finishes, including vapor barrier jackets for cold line anti-sweat purposes, *are factory applied.*

New, rot-proof, shrink-proof, high thermal efficiency

FIBERGLAS* LOW PRESSURE PIPE INSULATION

for low pressure steam lines, hot and cold water lines!

The problem is solved—no more rotting, shrinking, adsorbent, *costly* insulation on your low pressure steam lines, your hot and cold water lines!

New Fiberglas Low Pressure Pipe Insulation is here—the first major improvement in low pressure pipe insulation in over 30 years—tested and proved in three years of trial applications!

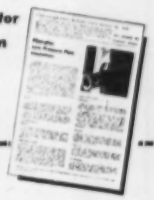
Made of inert fibers of glass, this pipe dream come true will not rot, shrink, swell, buckle, or sag. It's lightweight, resilient, moisture resistant, *and up to 50% more efficient thermally than old insulations used in low pressure service.* Best of all . . .

New Fiberglas Low Pressure Pipe Insulation is priced right in line with ordinary insulations!

Which means that for any given installation it's actually cheaper. For thanks to higher efficiency, ½" of Fiberglas Low Pressure Pipe Insulation does the same insulating job on hot piping as 1" of less efficient old type insulation —and it lasts and lasts. The properly located vapor barrier (on outside of insulation) helps avoid condensation, adsorption and resultant corrosion of pipe and deterioration of insulation.

Whatever the application—low pressure steam, hot water or anti-sweat for cold water lines—Fiberglas Low Pressure Pipe Insulation pays for itself time and time again. Moreover, it's easy to cut and handle, fast and economical to install.

Mail coupon now for new 4-page bulletin giving full technical data!



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EQUIPMENT INSULATIONS • LOW TEMPERATURE INSULATIONS

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Position.....
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City.....**Zone**.....**State**.....

Engineers choose "fast, economical Cofar" for new 23-story Denver Club Building

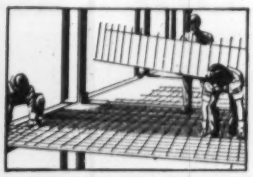
Denver Club Building
Architect: *Raymond Harry Ervin and Robert Berne*
Engineers: *Technic Engineering Company, Dallas, Texas*

HERE'S WHY

. . . says J. A. Crowley of Technic Engineering Co., Dallas, Texas, (structural engineers for the Denver Club Building)

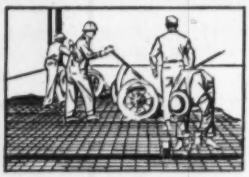
"From marble lobby to glass tower, the Denver Club Building will feature the newest and finest in office building construction . . . but that's not the only reason we chose Cofar! Cofar steel units serve as *both* permanent form and reinforcement. They eliminate costly wood forms in concrete construction . . . provide all the positive steel needed in the structural concrete slab and are extremely economical and easy to install. Cofar fills our bill perfectly!"

Today, throughout the country, firms like Technic Engineering Company are discovering the fast, economical Cofar way to modern concrete floor and roof construction. Cofar design requires no special procedure, has already been used in over 3,000,000 square feet of floors and roofs. For more information, write home or district office, Department ER-C.



Placing steel and form in one operation

Cofar steel units (with transverse temperature wires welded across corrugations) arrive at the job site cut to length to fit the building frame. Welded in place, they give frame added lateral strength.



An immediate working platform

High-strength Cofar steel absorbs construction abuse. Cofar sheets serve as tight form for wet concrete. After concrete sets, Cofar provides complete positive reinforcement at bottom of slab.

Safe, strong concrete floors

Fast Cofar construction speeds occupancy, is suited to steel or concrete frame construction. Cofar monolithic floors provide complete plate action for concentrated loads, horizontal forces.

the reinforcement that forms

COFAR

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Also manufacturers of Corruform, Tufcor and Roof Deck
Subsidiary of GRANITE CITY STEEL COMPANY
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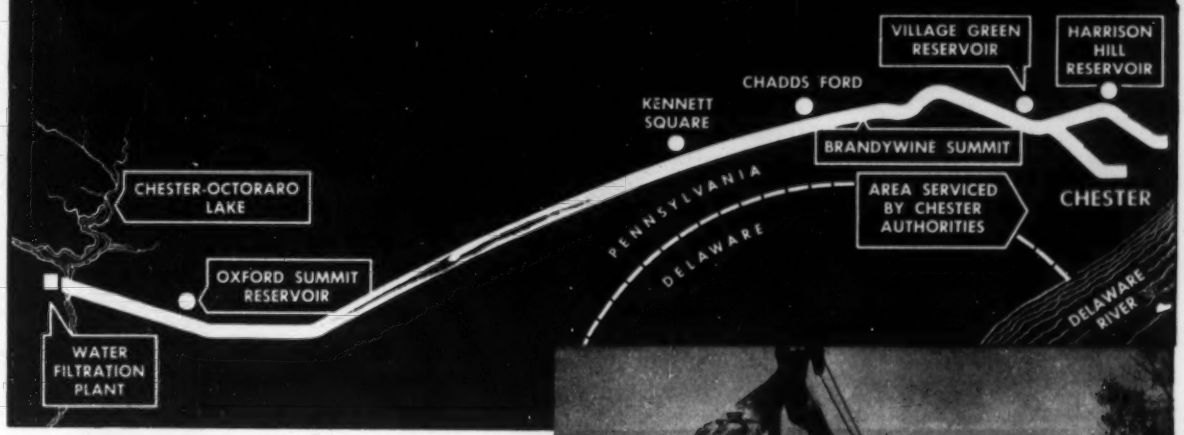
a 44 mile LOCK JOINT pipeline

...with a Hazen-Williams "C" of 150



IN TESTS on 233,000 feet of 24", 30", 36", 42" and 48" Lock Joint Prestressed Concrete Cylinder Pipe in Chester, Pa. the eminent hydraulist, F. C. Scobey, found a coefficient of 150. This gives the city a premium capacity of 11%. Leakage was a mere 12% of the maximum allowed by the Consulting Engineers. Thus Chester enjoys greater capacity with far less waste than the city anticipated—truly premium performance in every sense. For similar trouble-free operations, let Lock Joint supply your needs in pressure pipe 16" and larger.

Laying a section of the 48" pipe for the Chester Water Supply Main

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16" in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

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Established 1905

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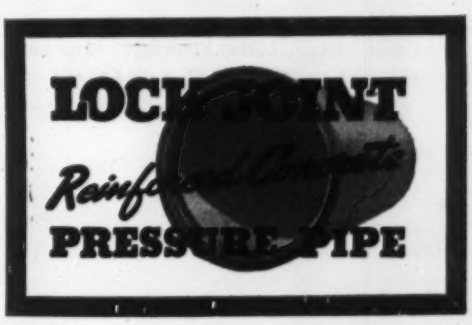

Give your clients more useful, post-free space—for less money—with

75 TECO trussed rafters, each 50′ span, furnished by James H. Carr, Inc., Washington, D. C., provides more versatile, spacious interior for this Fairfax, Va., furniture store.

WOOD FRAME

TECO TRUSSED RAFTERS

in their

**STORE BUILDINGS . . .
GARAGES . . .
DANCE HALLS . . .
COMMUNITY and RECREATIONAL BUILDINGS, as well as ADDITIONS to EXISTING STRUCTURES**

Wood frame TECO trussed rafters are fabricated from standard lumber items, in plentiful supply. They are simple to assemble with TECO wedge-fit connectors, and are quickly erected with a minimum of labor. They are readily available from timber fabricators in all areas of the country — or they can be built easily right on the job site.

BUT — for precision assembly and maximum joint efficiency, SPECIFY and INSIST ON GENUINE TECO WEDGE-FIT connectors in conforming grooves.

For DESIGN DATA on versatile TECO trussed rafters, send for free booklet.

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Please send FREE booklet, "Wood Frame TECO Trussed Rafters".

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FIRM.....
STREET.....
CITY.....ZONE.....STATE.....

ENR-5410

READER COMMENT

Roof is hanging shell

SIR: Ulrich Finsterwalder, chief engineer of Dyckerhoff & Widmann, designers of the structure described in ENR May 20, p. 64, as having a saddle-shape concrete roof, recently furnished me with information indicating that your description of the shape and action of the structure was based on some misunderstanding, likely due to language and translation difficulties.

The roof slab is shaped to a catenary This results in tension throughout the 2⅜-in.-thick shell, which is too thin to take bending moments. The midspan cross section of the structure shows a slight counter curvature, necessary for drainage, but undesirable from the stress standpoint. The shell is not a hyperbolic paraboloid. There is no arch action in the shell and no tension in the edge member.

The edge member is actually a compression ring, which in view of the oval plan area has a tendency to bulge outward.

Prestressed bars in the shell tie each pair of columns and prevent the columns from moving outward. The pre-stressing eliminates undesirable bending moments in the ring, which becomes a true compression member. The ring is safe against buckling, since the column spacing is only 17 ft.

ANTON TEDESKO
Roberts & Schaefer Co.
Chicago, Ill.

[EDITOR'S NOTE—Mr. Tedesko is correct that the roof is not a hyperbolic paraboloid, because the shell does not have a warped surface. This information was provided ENR too late to correct the story prior to publication. The existence of a counter curvature at midspan, which Mr. Tedesko admits, led to the conclusion that the shell would have compressive stresses in a transverse plane.]

CALENDAR

National Council of State Boards of Engineering Examiners, annual meeting, Hotel Saint Paul, St. Paul, Minn., Aug. 26-28.

American Society of Civil Engineers, hydraulics division, annual convention, Austin, Texas, Driskill Hotel, Sept. 8-10.

National Highway Conference of County Engineers and Officials, ARBA, Deshler-Hilton Hotel, Columbus, Ohio, Sept. 13-15.

Illuminating Engineering Society, national technical conference, Chalfonte-Haddon Hall Hotel, Atlantic City, Sept. 13-17.

Society for Experimental Stress Analysis and International Congress and Exposition: Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 21-23.

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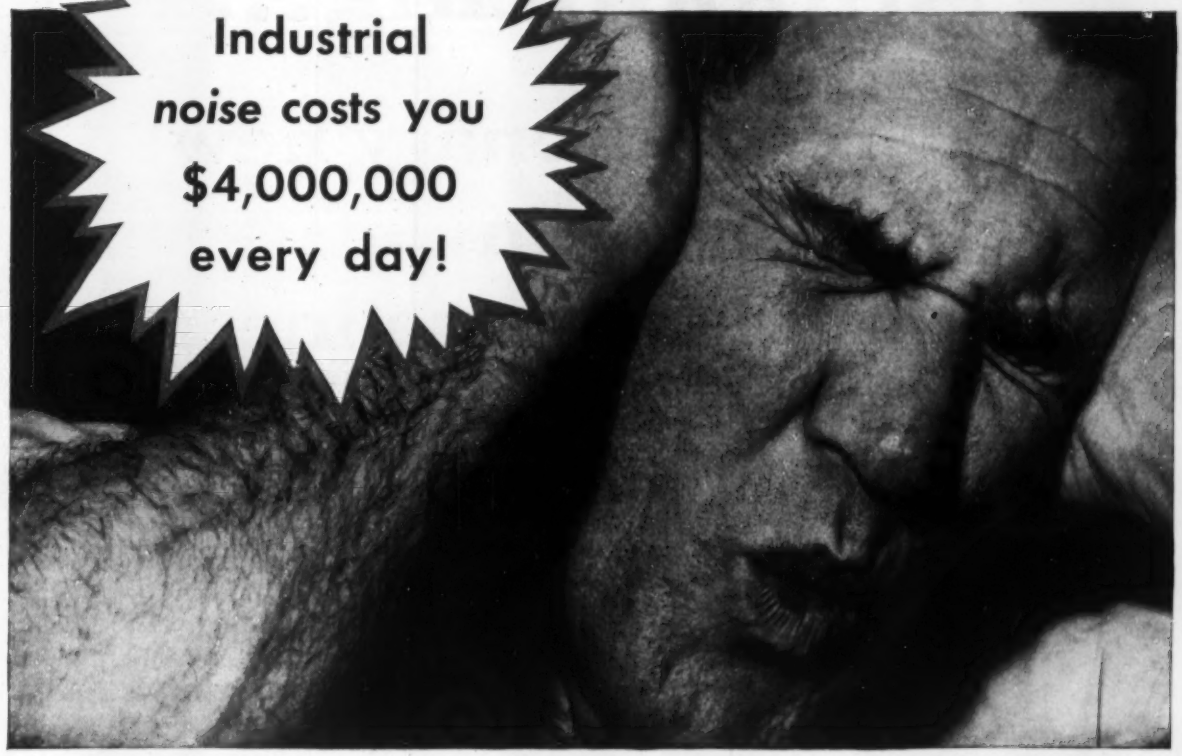

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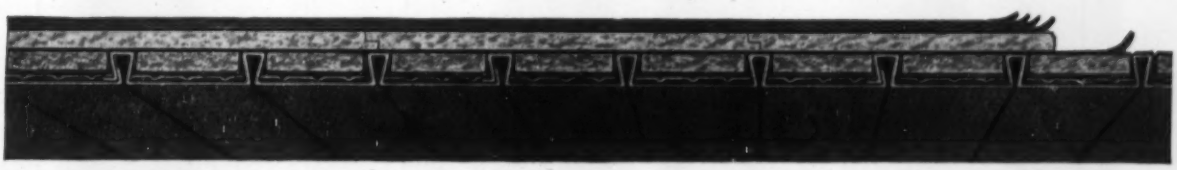

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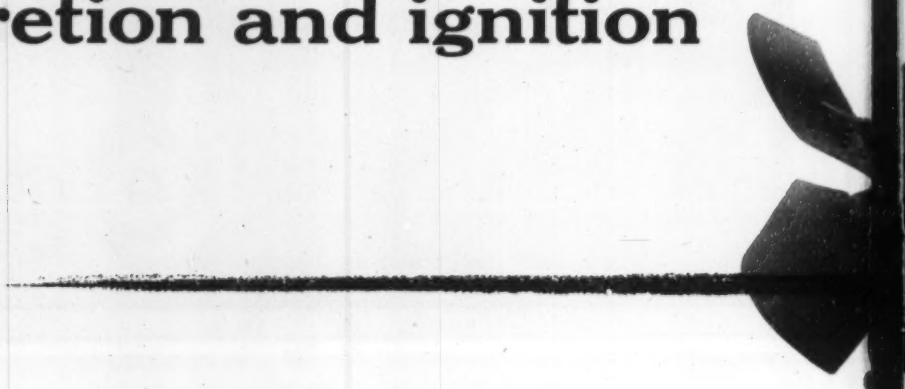

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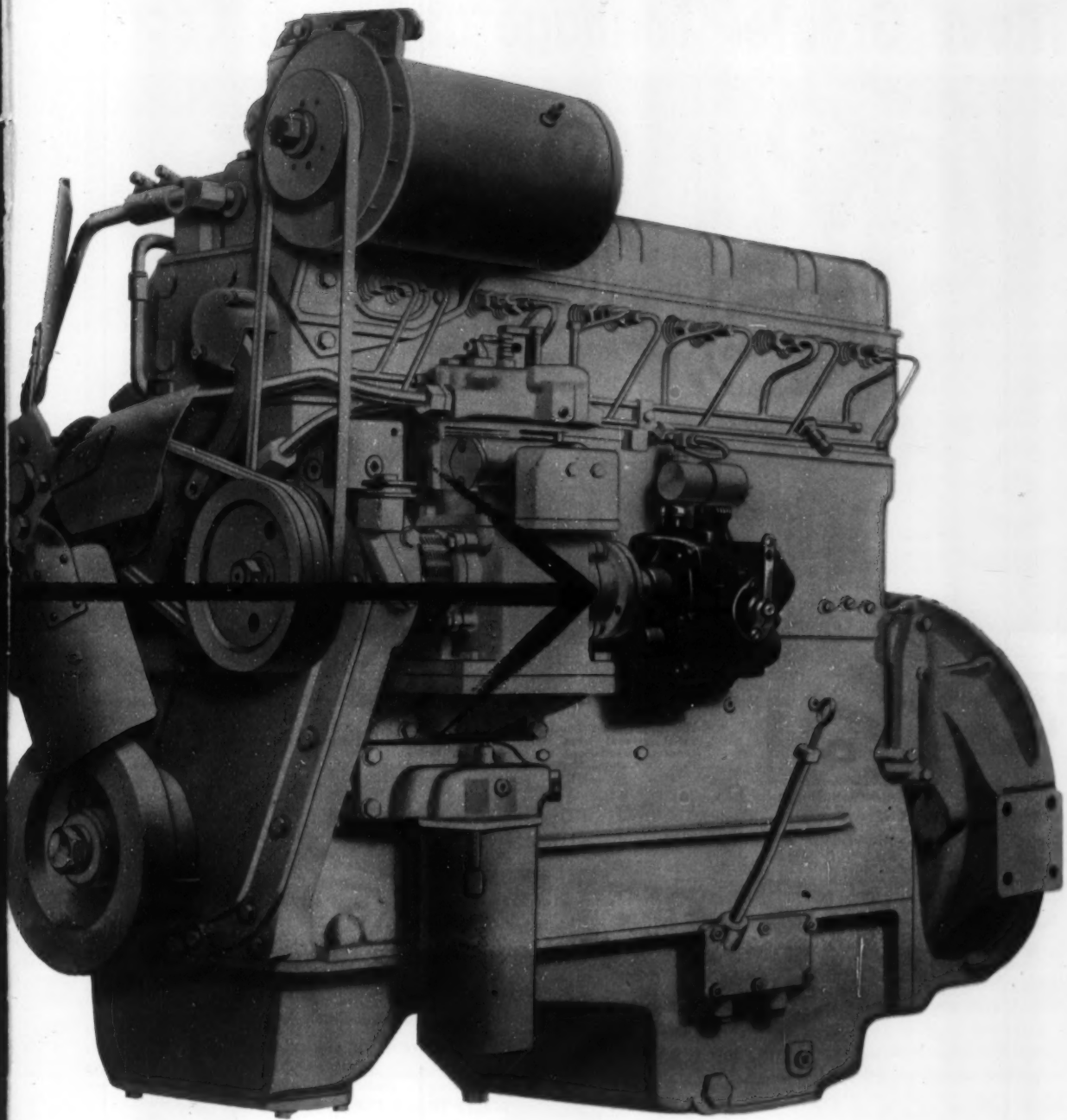

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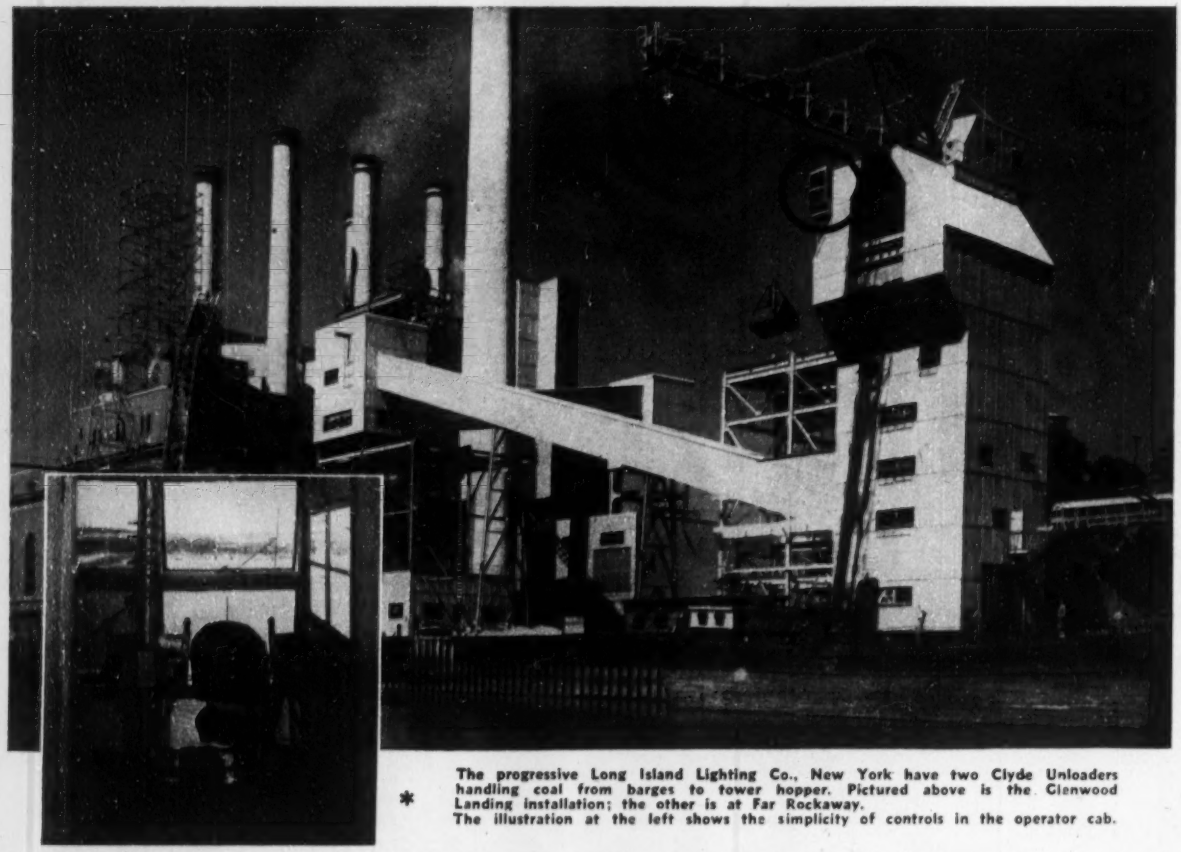

* The progressive Long Island Lighting Co., New York have two Clyde Unloaders handling coal from barges to tower hopper. Pictured above is the Glenwood Landing installation; the other is at Far Rockaway. The illustration at the left shows the simplicity of controls in the operator cab.

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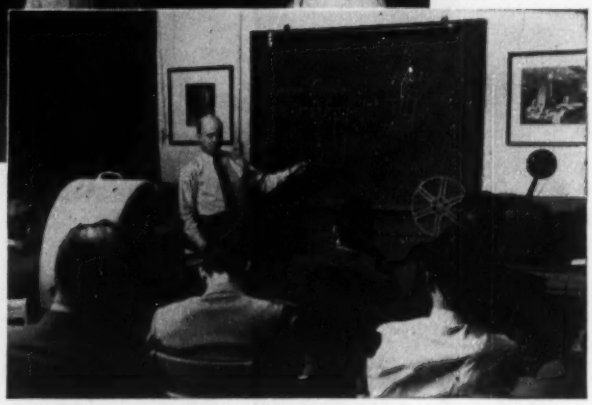

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

ARCHITECT NOT AN ARCHITECT?—A nice case of legal wording is involved in that four-count indictment brought by the Ohio Board of Architects against G. G. Albanese of Sylvania, for practicing without a state certificate.

The board charged that Albanese provided designs and specifications for a new auto worker headquarters and recreation and shopping center in Toledo, although he is not registered with the board and has no certificate. The three other counts charge that the defendant designed three other Toledo buildings.

Key point is this: Albanese has termed himself a designer, not an architect, in the course of his work.

HOW LONG FOR SILT?—A new guess as to how long it will take for sediment to fill Lake Mead (behind Hoover Dam) is contained in a mammoth report by a dozen U. S. agencies:

They think it will take at least 350 years—might even be three times that long, depending on reservoir operating conditions and river development upstream.

The Bureau of Reclamation's original guess was a bit less than 300 years.

LOCAL TOLLS—Maryland newspapers are reading local politics into the announced reduction of tolls on the state's Susquehanna and Chesapeake Bay toll bridges.

Reason: The toll reductions affect only steady commuters who buy multi-trip tickets—and they account for 18.36% of Susquehanna traffic, 0.54% on the Chesapeake.

But rates for out-of-staters and occasional riders remain the same.

WATER FOR YUKON RIVER—That proposed $700-million development of water power on the Yukon in British Columbia (ENR Jan 28, P. 17) moved a step nearer with formal application for a conditional water license.

The proposition was presented by Frobisher, Ltd., which has been planning a project that will produce 3,750,000 KW of power to supply aluminum and other industries.

First work—if the license is granted—will entail something like $212 million to divert the Yukon into the Taku River, and another $57 million to build smelting plants at the head of Taku inlet.

LEASE-PURCHASE APPROACH—General Services Administration is considering two approaches to its newly acquired lease-purchase contract rights:

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WASHINGTON OBSERVER

Naming of Army engineer to be chairman of TVA will be fought in Senate. The old Engineer-TVA feud over development of the Tennessee River will be touched up with appointment of Brig. Gen. Herbert D. Vogel, division engineer for the Southwest. Also, this will give pro-TVA bloc an excuse for re-opening the private-vs-public power fight that held up Senate action on the atomic energy bill for 13 days.

•

Air engineers may build the 50 "Texas tower" radar stations that are to be built offshore along the East Coast, most of them north of Norfolk. They will be similar to the oil rigs erected in the Gulf of Mexico. They go as far out as 25 miles from shore, average about $500,000 each.

This offshore network will tie in with northern border radar net that's also getting under way. Plans call for 485 of these towers, running to a cost of about $170,000 each.

•

Big set-back to Administration's reclamation program came with the turndown by the House of the $173-million Frying Pan-Arkansas project for Colorado. Similar fate is in store for the proposed billion-dollar Upper Colorado water storage development.

Coalition of downstream California water-users and Democrats defeated the Frying Pan authorization. Big fight between upper and lower basin factions made it easy for easterners and Democrats to kill the project for this year.

•

Construction will get its share of the "nudge" business is getting from the Administration this summer and fall. Idea is to award contracts and spend money now that would otherwise not be spent until next year. Hope is that this will keep business moving upward, certainly until Election Day.

Advance announcement of highway money allocations is expected to get states going on federal-aid projects before fall.

Revival of federal-aid airport construction is another element. But fate of this is now up to the Senate, where a $22-million appropriation is being sought.

Other "nudges" are being given to shipbuilding, Army ordnance and airplane contracts—with hundreds of millions of dollars involved.

•

Business impact of easier credit for housing will be felt immediately. Local FHA offices already are accepting applications based on the new terms. They'll have the regulations and forms to process these inside a week or ten days.

Builders complain about some provisions. Law requires you to certify costs of insured multi-family housing—a congressional safeguard against windfall profits. Builders say they will stay clear of government-insured financing of such work. They say that even the most blame-free outfit is risking trouble in swearing to the exact cost of hundreds of elements in any building project.

Builders say they can live with one-year guarantee of one- and two-family housing insured by VA and FHA. Final wording on this came out the way the builders wanted it: Construction must be in "substantial conformity" with FHA or VA specifications. This means minor changes of material and equipment can be made as long as it's of the same quality.

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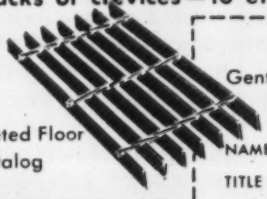

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- **Military construction for the Army, Air Force and Navy will amount to more than $1.5 billion of spending this year as a new $850-million program gets under way.**
- **Housing legislation assures a continuing boom for more years to come.**
- **New reclamation and rivers and harbors projects will get started, and a brand new policy of local partnership will put more money into construction of new hydro power projects.**
- **A new round of hospital construction will begin soon.**
- **The multi-million-dollar St. Lawrence Seaway is getting started after decades of waiting.**
- **The first leg of some $3 billion of public buildings will open up under the new Lease-Purchase Act.**

Congress sets policies to bolster construction

The 83rd Congress, now in its final days, has approved legislation that will assure a continued high level of construction activity, at least for another year. More important still, in the long run, Congress has laid the foundation for the heaviest program of public works construction in history.

Despite the prolonged Senate fight over public vs private power and the bitter attacks that grew out of the housing scandals, Congress, in general, accepted and supported the doctrine of the Eisenhower Administration that the construction industry is a principal bulwark of the national economy and must be kept healthy.

Not every project up for congressional action this session was approved, of course. A few were defeated; others were sidetracked; and funds were cut below the requested amounts here and there.

But the major construction bills enacted add up to solid assurance of a rosy future for construction.

Highways

Highways are the standout construction star of the present session. Not only did Congress pass the Administration bill, upping annual federal aid by 66%—from the present $525 million to $875 million—but the President came out with advice to the state governors to get ready for spending $50 billion above normal expenditures on highways in the next 10 years.

Further, congressional leaders have started talking already about enacting the next authorization bill—an even bigger one—at the first session of the new Congress. Then the Commerce Department could step even faster on its speeded up policy of allocating money to the states far in advance, thus helping the highway departments to prepare programs for an even more rapid expansion of road construction.

Congress in this year's highway bill also gave the Bureau of Public Roads the sanction it needed to go ahead with important highway testing and research projects that have been simmering for some time.

Public Roads Commissioner Francis V. du Pont said Congress had given "evidence of its concern for the importance of the highway program." Then he added, "If I were a construction contractor, I certainly wouldn't sell out at this time."

Housing

Housing ranks on a level with highways for the potential of new building business generated by the outgoing Congress. Administration expert Albert Cole put it mildly when he said, "The Housing Act of 1954 will make more money available to more people to buy more homes than ever before." Senator Capehart was more explicit when he predicted the act would boost new home construction 10% to 20%.

Easing of the mortgage terms in the housing act for government-insured loans assures a broadened market for both new and old houses, plus a potential climb in construction of community improvements that must accompany new building.

Tight safeguards in the law against windfall profits are going to defeat use of the new provisions to aid rebuilding and replacement of substandard housing in blighted areas, the homebuilders say. The same block will operate against any new government-insured apartment construction, in their opinion.

But the new law will open up a broader attack on urban renewal—bigger than the old slum clearance program—that can lead to billions of dollars of construction.

Federal programs

On federal construction programs like flood control, rivers and harbors, and reclamation, Congress has collaborated pretty well with the Administration in voting funds close to those asked by the President. Some additional money for reclamation, including cash to start two new projects, may be approved in the supplemental appropriation bill. And Congress is increasing the backlog of future Army Engineer projects by authorizing $1 billion additional of flood control, navigation and beach erosion works.

Army Engineers can carry on an active civil functions program with the $350 million of construction money that Congress voted. Maj. Gen. Samuel D. Sturgis, Chief of Engineers, said, "Congress has appropriated funds to maintain satisfactory progress on our program as a whole, including projects involving power.

"New starts in navigation and flood control have been very few since the onset of the Korean war, and the Congress has recognized the need for

. . . Congress

new projects and has appropriated funds for the initiation or resumption of 24 highly important and urgently needed flood control and navigation projects."

Somewhat similar views were expressed by Deputy Commissioner Leslie N. McClellan with respect to Reclamation's budget for the current year. "Regular construction appropriations of some $126 million will take care of going projects in an orderly manner," he said. "A number of the larger projects are now nearing completion. Funds for investigations and planning are adequate to keep the program going."

About $6 million of additional reclamation funds are included in the supplemental appropriation bill. If approved, the additional money would be used in part to start the Glendo project in Wyoming and the Lovewell Dam in Nebraska.

Lease purchase

The new lease-purchase law also has brought high expectations from government officials. Public Buildings Commissioner Peter Strobel said the law offers " a new avenue for private industry, particularly investors, to supply buildings for government use." In the first year the General Services Administration and the Post Office Department are permitted to take bids on lease-purchase contracts that amount to some $100 million of new buildings.

A dollars-and-cents rundown of how much money each government agency will have to spend can't really be made until the Budget Bureau issues its review in August, translating congressional appropriations and Administration policy into a spending schedule.

But agency heads generally believe that Congress has done as much for their construction programs as they could expect. None got all they wanted. Agency requests were trimmed first by the Budget Bureau and then underwent further alteration in Congress. But the construction chiefs say they have enough to keep construction going at a good level through fiscal 1955.

Engineer asks special tax to finance water projects

California state engineer A. D. Edmonston has proposed a special tax to finance development of a water resources program in the state.

He pointed out that a great network of highways was being built in California largely with funds collected through gasoline and fuel taxes. "A similar tax must be created for the development of our water resource projects," he said.

Edmonston spoke in San Diego before the Southern Empire Regional Association of County Supervisors. He said planning of water resource projects was well advanced but actual construction was lagging because of the lack of funds.

"I believe that only through some special process of general funding can we develop an adequate and comprehensive program of water project construction," he said.

Bonneville ordered to chop 603 more from its payroll

Interior Secretary Douglas McKay has put into effect recommendations of an administrative survey team to slash personnel of the Bonneville Power Administration from 2,703 to 2,100.

The engineering and planning departments were hardest hit by the staff reduction order. Personnel of the two departments was cut from 1,006 to 600. Before the Eisenhower Administration started trimming its staff in 1952, Bonneville employed a total of some 3,200 people.

Survey shows slight decline in office building occupancy

Occupancy in U. S. and Canadian office buildings is declining slightly, according to the latest semi-annual survey of the National Association of Building Owners & Managers, which covered 230 million sq ft of rentable space in 162 cities.

However, the occupancy ratio is still very high by pre-World War II standards (chart). The latest survey shows it as 97.12%. Two years ago, it was 98.20%.

Results of the survey, as published in the Association's magazine Skyscraper Management, show that since last fall the decline has extended to every region except the Southwest. Among U. S. regions, the Southwest (which for purposes of this survey includes cities in Texas, Oklahoma, and Arkansas) has the lowest vacancy ratio—1.77%.

Office space is tight in Canada, where the vacancy ratio is only 0.74%. The highest vacancy ratios are in the Pacific Northwest (5.18%), and in the rest of the Pacific area (4.03%). Other regions range from 3.16 to 3.67%, except for the Middle Atlantic, where vacancies average about 2.31%.

Construction bills advance in Congress

Congress pushed construction bills through the legislative mill last week as it hurried towards adjournment.

• **VA housing loans**—The Senate passed and sent to conference an authorization setting up a $50-million revolving fund to provide for direct loans to veterans for home and farm-house purchases through fiscal 1955. The House bill had provided for a revolving fund of $25 million and the Senate increased this figure to $50 million.

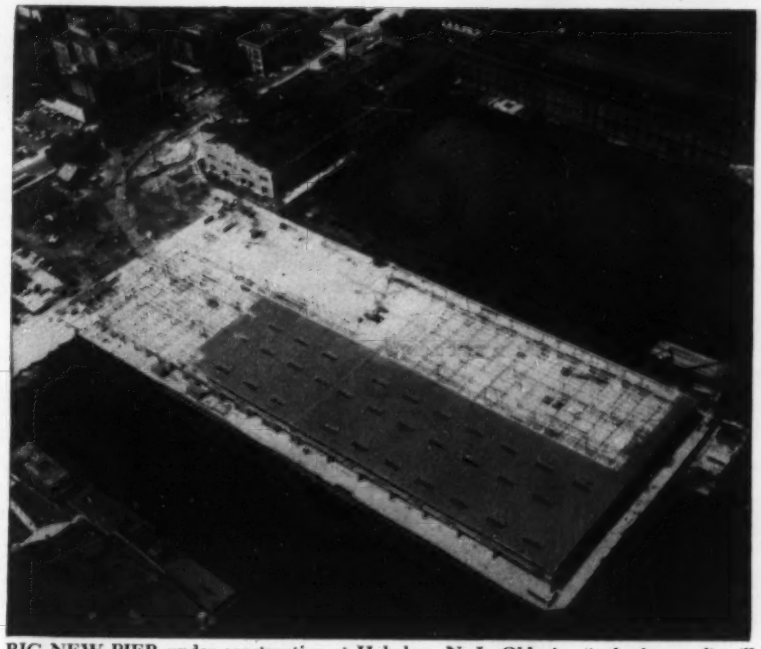
• **Rivers and harbors**—The Senate Public Works Committee reported the omnibus rivers and harbors and flood control bill after adding projects to the House-passed version. The House okayed an authorization of $890 million in new projects and the Senate committee upped the amount to $1,059 million.

• **Military housing**—The House approved military housing authorization of 13,613 units, including replacement of substandard housing and the rehabilitation of additional units. Total authorization is not to exceed $175 million. During floor consideration an amendment requiring that at least 60% of the new units be earmarked for enlisted men was added. The measure now goes to the Senate.

• **Frying Pan-Arkansas**—In a surprise action the House voted against consideration of the measure that would have authorized $172 million to divert water from the Frying Pan River in western Colorado to the Arksansas River in eastern Colorado. The measure also would have provided for the construction of irrigation, municipal water, flood control and power facilities. Although proponents haven't conceded defeat, the chances for favorable action this session are remote. The Senate has not acted on the bill.

• **Rogue River**—The House passed HR 8384 authorizing the Secretary of Interior to construct the Talen division of the Rogue River Basin project in Oregon. The bill provides for irrigating 18,000 acres and for a 16,000-kw power plant at a cost of $22 million. It already has passed the Senate and now goes to conference for final version that will be acceptable to both houses.

• **Palo Verde**—The House passed a $1-million authorization for a dam across the Colorado River to re-establish the Palo Verdi Irrigation District in California as a means of diverting its irrigation water supply from the Colorado River. The authorization measure has not been reported in the Senate for action.



BIG NEW PIER under construction at Hoboken, N. J. Old pier (in background) will be renovated.

$15 million in construction assured as shipping firm-PNYA sign lease

Signing, in Hoboken, N. J., of a 15-year lease by representatives of the Port of New York Authority and the American Export Lines company assured the continuation—and completion of at least $15 million worth of New York port terminal construction.

The signing ceremony took place on the deck of the partially completed Pier C, pilot construction unit of the program—and the harbor's second precast, prestressed pier. To follow soon is the construction of Pier A, almost identical to the first unit, and the rehabilitation for passenger service of the existing Pier B, between the two.

Pier C, 700 ft long and 328 ft wide, was started in September 1953 and is scheduled for completion in March 1955. Pier A, slated for a start late this summer, will be completed late in 1956.

Pier C substructure is 14-in., H-beam piling driven to rock. Cathodic protection has been installed. According to H. George De Cancq, PNYA engineer for construction, the authority estimates the cost of protecting the 1,400 piles at about $3 per pile per year.

Several unprotected piles have been driven in an area adjacent to the pier for comparison purposes. Tests will be conducted from time to time to establish the extent of protection afforded by the cathode, an 8-ft-long piece of carbon about two feet in dia.

The carbon is placed six feet below low water, and will give an estimated six years of continuous three-ampere service before replacement.

The operating deck of the pier is designed for a 600-psf loading, substantially higher than older facilities in the area. Main Transverse girders are prestressed by six sets of high tensile strength steel cable.

Concrete in the main girders was placed in two lifts to allow installation of stringers, and after stringer installation with the subsequent placing and curing of concrete, the cables were post-tensioned to a 65-ton stress.

Stringers were precast and prestressed in the Claremont, N. J., yard of the general contractor, J. Rich Steers, Inc., and barged to the site.

Pier fenders are untreated timber piling. Exterior covering is plastic-protected steel panels, and roofing material is cellular steel paneling.

The general layout for Pier C is additional evidence of the new trend in terminal design. Its 328-ft width makes it possible to establish one-way traffic patterns within the structure and allows for aprons between the superstructure and fender line for trucks to move directly to ship-side. The pier's length of 700 ft provides space for simultaneous loading and unloading of five freighters.

Costs rise sharply

Construction costs go up as materials prices rise and wage rates advance

The relative stability in construction materials prices ended abruptly this month with the sharpest rise since 1948.

Price increases in all the "big three" materials—structural steel, lumber and cement—plus a number of wage raises have pushed the ENGINEERING NEWS-RECORD Construction Cost Index up nearly 21 points since June 1. The Building Cost Index is up 16 points.

The ENR Construction Cost Index for Aug. is 642.05 (based on 1913 = 100), 2.3% higher than in July and 4.8% above a year ago. The Building Cost Index (also based on 1913) for August is 455.51, 2.6% above the July value and 4.3% over August 1953.

Average price of structural steel at three mills advanced 15 cents to $4.25 per cwt, up 3.7% from the July price. It was the third time since price control went off in 1952 that steel prices have increased. During the last 25 months they have climbed by 16.4%.

The lumber strike in the Northwest has caused a sharp increase in Douglas fir 2x4 prices which have risen an average of 8.8% above the July 1 level.

Fir prices are now back very close to the postwar high reached in October 1950. Pine prices also have gone up due to the fir shortage. On Aug. 1 they averaged 2.5% above a month ago and were highest they've been since February 1953.

Cement prices, which rose in six cities last month, increased in three more cities this month. Most of the cement hikes have amounted to 15 cents per barrel, corresponding to the recent rise at the mills. Percentagewise, they have ranged from 3.5% in San Francisco to 6.5% in Los Angeles.

• **Wages too**—On the wage front this month, there were a few scattered wage raises. Common labor unions won increases of five cents per hour in Dallas, 7½ cents in Denver, and 10 cents in Los Angeles (including 7½ cents health and welfare). Denver carpenters signed for a 7½-cent raise, Pittsburgh bricklayers for 15-cent hike.

• **New measure**—These fast price movements on a broad front were caught by ENR's new weekly cost indexes, in which construction costs moved like this: July 1—628; July 8—645; July 15—644; July 22—642; July 29—642 (official Aug. 1 value).

And building costs moved this way: July 1—444; July 8—458; July 15—458; July 22—456; July 29—456.

Toll highway projects move ahead in six southern, midwestern states

Toll highway ventures moved ahead in six states last week. Preliminary steps looking toward an early call for bids were taken in Florida, Virginia and Kansas; the last section of the Ohio Turnpike was placed under contract; first ground was broken on a toll highway in Kentucky; and ground breaking on the east-west Indiana toll road was scheduled for Sept. 1.

• **Florida**—The Florida State Turnpike Authority is speeding up design work on the state's first toll highway project so that bids on actual construction of the $89-million turnpike from Miami to Fort Pierce can be called as soon as the bond issue has been validated.

The Authority hopes that the bond issue will be validated by early September. If it is, bids for the first contracts will be called at once. The Authority expects that the necessary engineering on the work to be let initially will be completed by then.

Design work for the 110-mi toll highway has been divided into seven sections with the following firms as section engineers:

(1) Rader Engineering Co.; (2) Maurice H. Connell & Associates De Leuw, Cather & Brill; (3) Gannett, Fleming, Corddry & Carpenter, Inc.; (4) Reynolds, Smith & Hills; (5) Smith & Gillespie; (6) Bail Horton & Associates Capitol Engineering Co.; (7) D. B. Steinman Co.

Overall supervision of the engineering work for the authority is being handled by Parsons, Brinckerhoff, Hall & Macdonald. Traffic and earnings studies are being made by Coverdale & Colpitts.

Package-type contracts are planned, covering all work on each unit into which the project is being divided. Bids will be accepted only from contractors who have prequalified. Forms for prequalifying may be obtained from Marvin D. Adams, Chairman, Florida State Turnpike Authority, 118 N. E. First Ave., Miami 32, Florida.

• **Indiana**—The Indiana Toll Road Commission set Sept. 1 for first ground breaking on the east-west turnpike across the northern part of the state. First construction bids will be called early in August, with bid openings on Aug. 25.

The Commission has awarded two contracts for design work. One went to Charles W. Cole & Son, South Bend, for the design of 10 service areas including gas stations and restaurants with an estimated construction cost of $6.5 million. A fee of 4½% of cost will be paid.

The other was to James-Williams & Associates, Indianapolis, for architectural and engineering design of interchange utility buildings, toll booths and interchange lighting on which construction is expected to cost $3.5 million. The fee: 5% of cost.

• **Virginia**—The Richmond-Petersburg Turnpike Authority took the first step toward construction of the proposed toll road linking the two cities by employing a Richmond law firm as general counsel and agreeing to borrow $200,000 risk capital from four Richmond banks.

The proposed road will be 35 mi long and will cost approximately $57 million. The money borrowed from the four banks will be used to finance traffic counts and location studies—tasks that must be completed before bonds for construction can be sold.

The authority will select two engineering firms to make these studies early in September. With the help of data gathered in previous studies, it is expected the engineering surveys can be completed in time to clear the way for land acquisition and a start on actual construction next year.

• **Ohio**—The Ohio Turnpike Commission placed the last section of the Ohio Turnpike across northern Ohio under contract. The contract for a four-mile section near Elyria, Ohio, was awarded A. J. Baltes, Inc. Norwalk, Ohio, on a low bid of $5.5 million. The contract for the section calls for work to be completed by Oct. 1, 1955.

• **Kentucky**—First ground has been broken for the 40-mi toll road linking Louisville and Elizabethtown, Kentucky. Construction is expected to take about 18 months, and the highway is scheduled to be completed early in 1956.

The Kentucky Department of Highways will receive bids Aug. 20 for construction of eight bridges for the road. Six of the bridges are three- and four-span continuous reinforced concrete beam construction, another is central-span reinforced concrete beam construction and one is five-span steel girder construction supported by reinforced concrete piles and abutments.

• **Kansas**—The Kansas Supreme Court has unanimously upheld the constitutionality of the state's new turnpike law under which the proposed $140-million Kansas turnpike will be started this year.

The toll highway will run 234 mi from Kansas City to the Oklahoma line. Engineering studies are now in progress. The Kansas Turnpike Authority hopes to offer bonds for sale by Oct. 1 and expects that actual construction will get underway before the end of the year.

Dirt cheap

Nassau County, N. Y., got bids ranging from $13,975 down to one cent for the job of digging a basin near Levittown that will require the removal of 50,000 cu yd of earth.

The low bidder was Davis Construction Corp. of Hicksville, N. Y. A company official said the one-cent bid was made in order to get the fill for use on company construction projects. Two other companies made bids of 98 cents and $1. "They wanted the job for the same reason we did," the Davis official said. "But they were foolish for bidding so high."

The bids were referred to the County Attorney and the Public Works Commissioner for study.

California meeting debates toll roads vs free highways

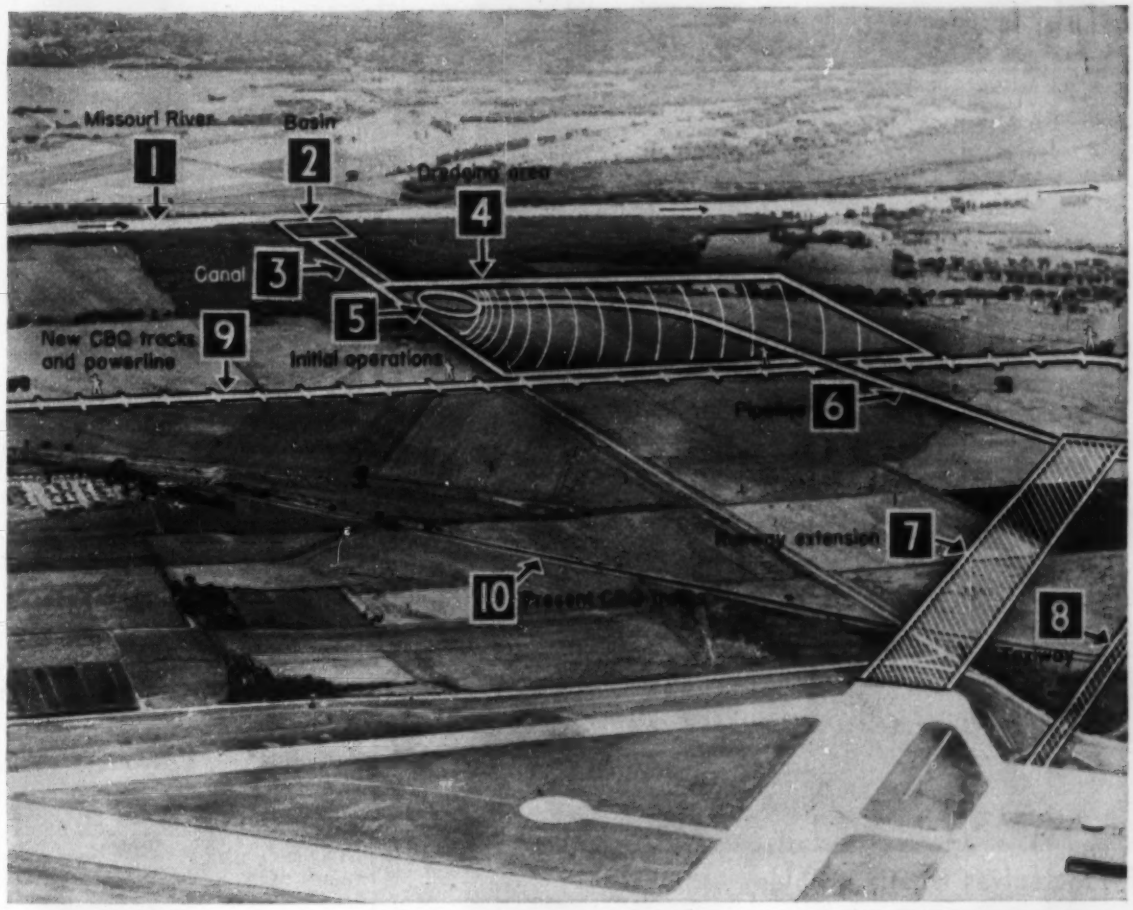
No definite conclusion as to whether California is about to jump on the toll road bandwagon can be drawn from comment made at a toll road conference held at Berkeley July 28.

Attendance was good—about 250 business and civic leaders—but opinion as to the desirability of toll roads for California varied. Investment bankers definitely favored a toll road program. Truckers were noncommittal but willing to cooperate in further studies. Auto clubs were strongly opposed to toll roads.

Like most other states, California was critically deficient in main highways at the end of World War II, but, unlike many states, California twice increased its gas tax to obtain money for needed freeways in the building of which California leads all states.

The conference was sponsored by the California Chamber of Commerce. Keynote speaker was H. E. Bailey, general manager of the Oklahoma Turnpike Authority.

Other speakers were Harmer E. Davis, director, and Ralph A. Moyer, research director, Institute of Transportation and Traffic Engineering, Berkeley. They reviewed toll road history and presented statistical data on current developments. George Harrington, San Francisco attorney, reviewed the legal and financial problems that would be involved in a California toll road program.



Dredge moved cross-country for Offutt Air Base job

A dredge is being moved three-quarters of a mile cross-country to pump fill on a runway extension job at the Offutt Air Force Base, headquarters of the Strategic Air Command, south of Omaha.

Contractors plan to construct their own lake in which the dredge can operate.

The operation, now getting under way, is in connection with a $3,058,020.95 contract to add a 4,231-ft extension to Offutt's present 5,769-ft northwest-southeast runway. A parallel taxiway (8) also will be constructed.

Because the present runway is on benchland and the extension reaches out over the Missouri River flood plain, the extension requires a fill of as deep as 45 ft. In all, nearly four million yards of earth will have to be brought in, of which three million will be moved hydraulically.

The work is to be done with a dredge brought up the Missouri River from Alton, Ill., by the La Crosse Dredging Co., of Chicago. The firm was awarded the dredging subcontract by Peter Kiewit Sons Co. and Condon-Cunningham Co., both of Omaha, who hold the overall contract.

Currently the dredge is in the river(1). The 183-acre site acquired by Army Engineers for a borrow pit is three-quarters of a mile inland(4). The river level currently is 12 ft lower than that of the borrow area.

Getting the dredge from the river to the borrow area is being accomplished in this manner:

- A 300-ft swath (3) has been dozed through the river jungle from the river bank to the borrow area. A 50-ft-wide, 6-ft-deep canal is being constructed with land equipment.
- At the river's edge, a 100 by 300 ft basin(2) will be dug with draglines.
- The dredge will be floated into the basin. A dike then will be thrown up on the river side of the basin.
- A 20-in. pump will fill the basin and canal with water, raising the dredge 12 ft.
- The dredge will be towed by a tractor down the canal to the borrow area to begin chewing away(5).

The pump will maintain water in the borrow area to keep the dredge afloat while it is working there. In addition, the work has been laid out so that water pumped by the dredge, after depositing its 20% load of solids on the fill, will drain back into the borrow area for reuse.

The fill material will be carried by a pipeline (6) strung across the intervening river bottom land to the work area. The line, to be equipped with a booster pump, will be one-mile long initially. Eventually, a two-mile pipeline will be required.

Actual dredging is due to begin the third week in August. The dredge will work continuously through the winter.

The pumping schedule calls for placing 300,000 cu yd a month. Completion is scheduled for September 20, 1955.

Still to come are contracts for the relocation of five miles of Burlington Railroad main line—from (10) to (9) and a similar length of 13,000-volt power line. Both will be shifted about 6,000 ft to the east to make way for the extension.

Authorized total expenditure for the runway job is $6,118,000.

Bridge solves traffic problem

The new $2.5 million Surfside Bridge spanning the Intra-Coastal Canal at the mouth of the Brazos River in Texas will eliminate the delays caused by competition between canal traffic and road traffic passing over the present barge bridge. The steel and concrete bridge is 2,416 ft long. Its 250 ft arched center span provides 201 ft horizontal clearance and 78 ft vertical clearance for water traffic. It is the only fixed span across the Intro-Coastal Canal. Gulf Bitulithic Co. of Houston and F. M. Reeves and Son of Austin are builders. The bridge will be opened Aug. 21.

British engineer to succeed Wheeler as engineer adviser of World Bank

British engineer C. B. H. Colquhoun has succeeded Lt. Gen. Raymond A. Wheeler, former Army Chief of Engineers, as engineer adviser of the International Bank for Reconstruction and Development (World Bank). Gen. Wheeler has planned to retire for the last two years.

Gen. Colquhoun's appointment fits in with the policy of making the bank better known and accepted as an international institution. The directors want to correct a common misconception that the bank is U. S. dominated. Plans are to make more and more loans in foreign currencies and to sell a larger share of bank bond issues abroad.

The British Federation of Industries last year sent a survey group to Washington to study the bank's operations and check on the story that the organization was slanted in favor of U. S. finance and business. They reported the bank to be impartial in its activities, but urged the British to be more cooperative in putting forth good candidates for staff posts. Nomination of Colquhoun was a sequel to that visit.

Appointment of a British engineer is expected to enlarge the bank's knowledge of new European engineering and construction techniques and equipment. It may help to make these developments more acceptable for use on projects that the institution finances.

Colquhoun is senior partner of Brian Colquhoun and Partners, London consulting engineers. He has taken leave to assume his bank duties.

Jobs in the news

ATOM LAB—Stone & Webster Engineering Corp., Boston, has been selected as architect-engineer of the building and supporting facilities for a 25-billion electron-volt proton synchrotron to be build at Brookhaven National Laboratory. Entire project will cost $20 million of which about $5 million is cost of building construction.

NICKEL PLANT—Frederick Snare Corp. and Merritt-Chapman & Scott Corp., New York, will build a $43-million nickel plant addition in Nicaro, Cuba. National Lead Co., New York, is operator of the plant for the General Services Administration, Washington, D. C.

BRIDGE—Harris Structural Steel Co., New York, was the lowest of three bidders for the contract to construct the superstructure of the Kingston-Rhinecliff bridge crossing the Hudson River in Ulster and Duchess Counties, N. Y., with a bid of $9.5 million.

GENERATING STATION—United Engineers and Constructors, Inc., Philadelphia, were awarded the contract to build a $100-million electric generating station in Linden, N. J., for Public Service Electric & Gas Co., Newark, N. J.

HOUSING—C. E. Youngdale & Co., Long Island City, N. Y., has been named general contractor for the Bay View Houses, Brooklyn, N. Y. Entire project will cost $13.5 million. The general contract is for $10 million.

Big Columbia River dams to cost $63 million less

Lower construction costs and economies effected by design changes have reduced the cost of The Dalles and Chief Joseph Dams on the Columbia River by $63 million. The Corps of Engineers said the savings would not impair the functioning of the big, multipurpose projects.

Col. L. H. Foote, North Pacific Division Engineer, reported that the savings on The Dalles Dam amounted to $45 million. The project now is expected to cost $303 million compared with an earlier estimate of $348 million.

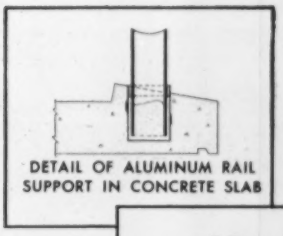
Chief Joseph Dam, he said, will cost $18 million less than expected—$169 million instead of $187 million.

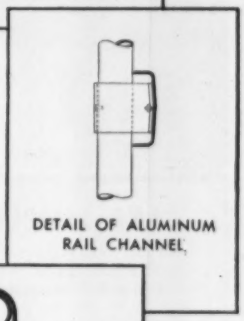
Better offers than expected for The Dalles powerhouse phases, relocation of U. S. Highway 50 and some design changes made possible the savings on the lower Columbia project.

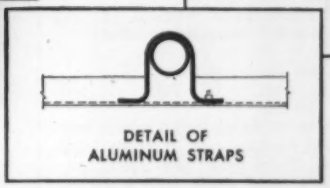
The economies at Chief Joseph Dam were effected by relocation of highways, utilities and design changes.

City of Chicago
Department of Public Works
Bureau of Engineering
Parking Facility No. 8

Consulting Architects and Engineers:
Friedman, Alschuler & Sincere
General Contractor:
A. L. Jackson Company, Chicago
Architectural Aluminum Fabricator:
David Architectural Iron Works Inc., Chicago


DETAIL OF ALUMINUM RAIL SUPPORT IN CONCRETE SLAB


DETAIL OF ALUMINUM RAIL CHANNEL


DETAIL OF ALUMINUM STRAPS

ALUMINUM

plays key role in new Chicago parking facility

On North LaSalle Street, Chicago stacks 12 parking lots on top of each other . . . fencing them in with Reynolds Aluminum Extruded Channel Railing—two rails attached by aluminum straps to 4″ aluminum pipe supports. Expansion joints are placed at every fourth pipe.

Since each of these stacked "lots" consists of a concrete slab floor surrounded by rustproof, corrosion-resistant aluminum, maintenance is practically nil. Appearance is distinctive, with the soft gleam of aluminum at each floor level. And this bright beauty is used in many other places, too . . . from the aluminum arrow at the entrance to the aluminum edge strip and gravel stop on the roof.

This railing is an example of aluminum extruded to a particular design need. The supporting extruded pipe, on the other hand, is a standard Reynolds Aluminum mill product. For regular sources of supply and for names of metal fabricators who can perform aluminum work to your specifications, call the nearest Reynolds Office listed under "Aluminum" in classified directories. Or write to **Reynolds Metals Company,** General Sales Office, Louisville 1, Kentucky.

For quick reference, see catalog $\frac{5a}{Re}$ ***in Sweet's Architectural File.***

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SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.

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5. After sealing all leaks, apply a protective cement coat over entire surface.

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LABOR

Area Welfare pact nation-wide model?

Boilermakers, contractors sign agreement to cover 40,000 men—hope for the establishment of a national pattern

Officers of the AFL boilermakers union this week hailed an area-wide agreement signed at Chicago as an opening wedge in their drive for a nation-wide health and welfare program that will cover all of the union's membership.

The union and representatives of 5,000 contractors in 10 midwestern states have negotiated a master contract providing employer-paid hospital, surgical and other benefits covering 20,000 to 40,000 of the union's field construction workers in those states. Union officials predict this agreement will be extended throughout the country by next October.

If it is extended, this will be the first national welfare program in the building industry. If it works successfully, other AFL building trades unions are certain to make welfare benefits a must on their list of future demands.

The delay in winning such fringe benefits in construction trades stems from the peculiar nature of the industry, where employes move from job to job and work under different contractors.

In coming to terms on the welfare program—which was worked out in continuous negotiations since December—the parties bargained out what they believe to be the solution. The plan provides:

- Employer payments of 7½ cents an hour to cover hospital costs, surgical benefits, medical expenses and maternity benefits for union members and their families.
- To collect benefits, workers are required to work a minimum of 325 hours over each three-month period for employers covered by the plan. Employers pay for the time the insured employe worked.
- If employes work for a contractor not taking part in the program, their work hours are not counted towards the minimum work time.
- The accumulated work hour information is furnished by contractors to a central point where the records are maintained. Benefits are then provided for employes meeting the minimum requirements.

First benefits under the program will be paid out next February, the first quarter period, beginning in October and running through December.

For the union member, benefits include $10 a day for hospital costs up to 31 days; $200 for other hospital charges plus 75% of further charges; surgical benefits with a $200 maximum; medical expenses providing $4 a call for doctor visits in a hospital up to $124 for an illness. Families of members will receive slightly lower payments, including maternity benefits.

Welfare plan records are being handled by Marsh and McLennan, Inc., a Chicago brokerage firm, for Aetna Life Insurance Co. of Hartford, Conn.

• **Hope to expand**—The master plan covers one of five areas into which boilermaker-employer bargaining is broken down. Contractors from the other areas joined in the preliminary bargaining but not in the first agreement.

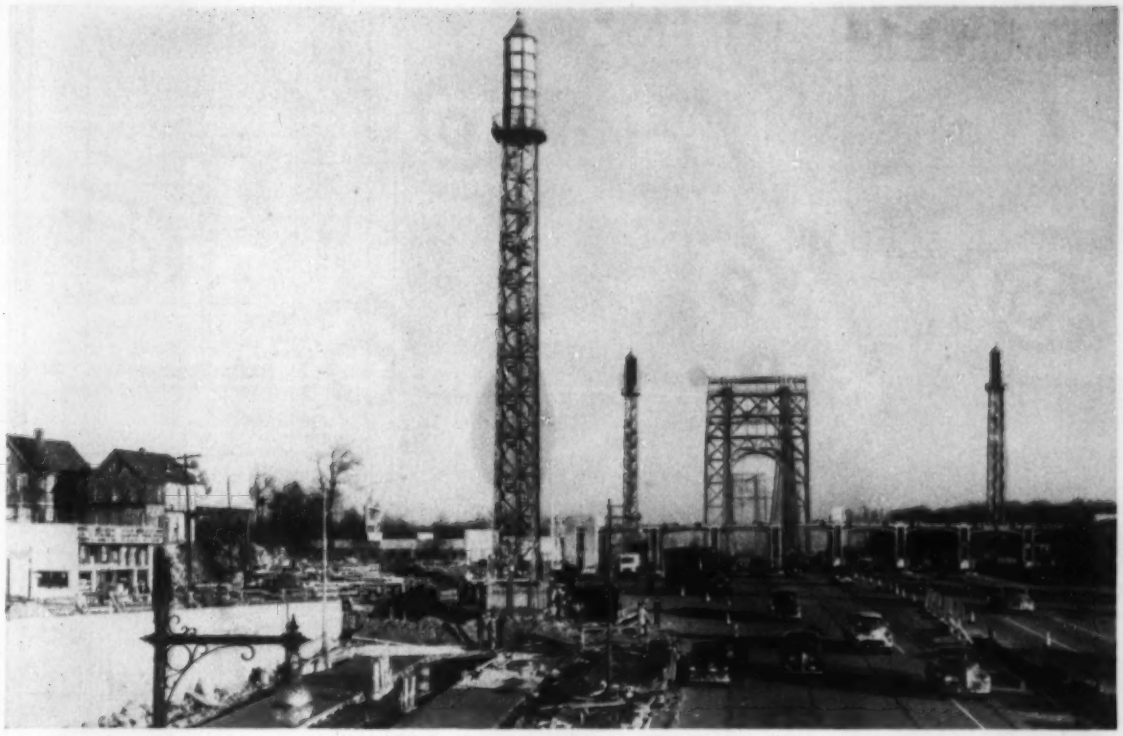
However, union officials believe a combination of circumstances will bring all contractors into the agreement. First, employes will be less inclined to work for contractors not now taking part in the plan, since their work time would not go to build up welfare benefits. Besides this union pressure, employers who pay the additional welfare costs are expected to put pressure on other contractors so that contract costs will be equalized.

• **Troubles ahead?**—Whether or not the plan could be made effective over the whole of the U. S., without running afoul of anti-trust and labor laws, was a matter of keen interest to other segments of the construction industry.

The boilermakers, of course, are in the nature of a specialty group of workers, working in most cases for highly specialized contractors. Under these conditions, it may be possible to determine reasonably uniform working conditions over a fairly large area.

More general trades, however, present such a variety of employers and working conditions that most labor specialists have given up the idea of working out a nation-wide agreement.

A nice legal point, also, will be the question of the effect of such an agreement on contractors who do not participate—and who will stand to lose workers to participating contractors because of the benefits offered.



TOLL PLAZA WIDENING at New Jersey approach to George Washington Bridge made it necessary to relocate four floodlight towers. Tower in foreground is one of two that were skidded.

Light tower takes a ride

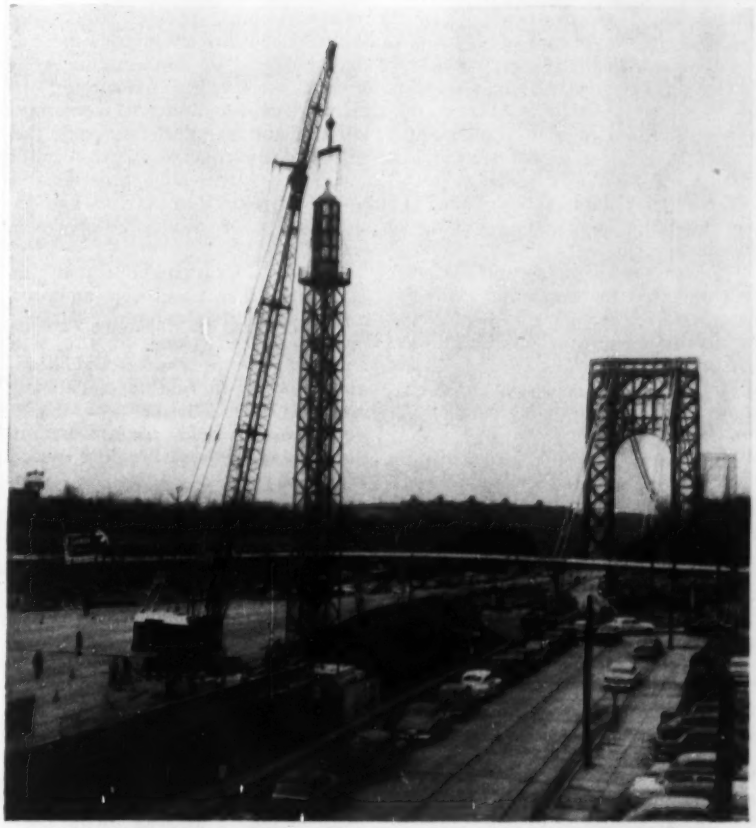
R. W. Goodman, Genl. mgr.
and
G. A. Fox, Chief Engineer
Grow Construction Co.
New York, N. Y.

Amid the constant stream of cars that shuttle across the New Jersey toll plaza of the George Washington Bridge, the relocation of four floodlight towers proved to be a challenging construction operation.

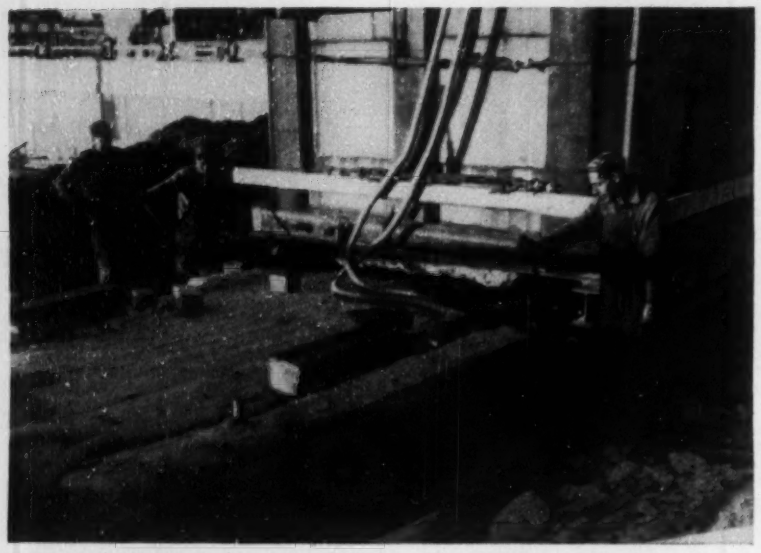
The Port of New York Authority has been engaged for the last year and a half in enlargement of the famous suspension bridge's toll plaza and ramps. Two of the contracts, held by Grow Const. Co., called for widening the plaza, lengthening a bridge, and relocating a ramp and a marginal road. Moving the towers outward to the new limits of the plaza was part of this work.

The towers are identical. Founded on rock, and having a 12-ft square concrete and granite masonry base, each structural steel tower rises 113 ft above grade.

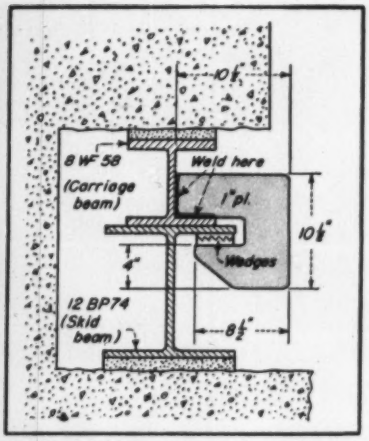
(*Continued on page 30*)



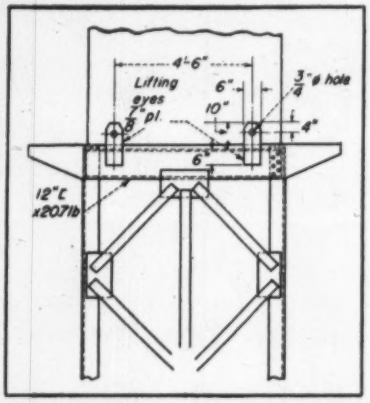
CRANE MOVE of two easterly towers took five minutes. Crane was spotted at center of circle passing through old and new tower positions.



HAND JACKS with 10-in. travel pushed tower 36 ft in 12 hours. Visible beam stubs were part of pushing assembly. Carriage beam is behind workman at right.



CARRIAGE BEAM was clamped to skid beam with wedged lugs, to keep tower from tipping in high wind.



LIFTING EYES for crane move of two towers were welded to tower-top frame at platform surrounding floodlight cupola.

Existing granite masonry at the two westerly towers could be salvaged and reused, so skidding was deemed the best way to move them. Masonry bases of the two easterly towers required replacement, so the steel superstructures were detached and moved, whole, by crane. This superstructure's weight was 18 tons.

Together with their bases, the westerly towers weighed 80 tons apiece.

• **How they did it**—The sequence of construction for each skid move was:

(1) Excavation was carried to rock in the area for the new tower base, at the skid-beam supports, and around the old tower base.

(2) Using jackhammers and a wagon drill mounted for horizontal drilling, two chases, 12 ft long x 24 in. high x 24 in. under-cut were removed from the sides of the existing concrete base, below the stone masonry. These chases were on the sides parallel to the direction of the move.

(3) Skid beams (8-in WF) and carriage beams (12-in. BP) were laid one on top of the other in the chases and grouted, top and bottom, to the existing concrete base. Concrete footings for the skid beams were then constructed at 10-ft 9-in. intervals. The carriage, or runner beams were slightly longer than the tower base side; the skid, or track beams extended to the new tower location. Extreme care had to be exercised to set the skid beams to parallel lines and grades.

(4) Cross-tie angles were placed on the front and back of the base anchored into the concrete, and welded to the top flanges of the carriage beams.

(5) Uplift lugs were placed on the adjacent flanges of carriage and skid beams, with the aid of steel wedges holding the beams together as a precaution against overturning by high winds.

(6) The wagon drill was removed from its carriage and remounted on a horizontal pipe between the skid beams. Using this fixed guide mounting, line holes at 3-in. spacing were drilled through the remaining 8-ft width of existing concrete base; then with a channeling device to guide the drill steel, the concrete between holes was drilled out, making a corrugated horizontal slice through the foundation. Existing anchor bolts then were burned off.

(7) Two 25-ton hand-operated gear jacks with 10-in. travel were mounted behind the carriage beams, bucking against angles welded to the skid beams. As the tower was jacked ahead, wood blocking in 8-in. increments was inserted. Every 8 ft the kicker angles were moved ahead. Actual jacking time was twelve hours for 36-ft moved at each tower.

(8) When the tower was in its relocated position, new stud bolts were butt-welded to the existing stubs, permanent electrical connections remade, and a new concrete foundation placed. This foundation permanently incorporated the carriage beams, cross-tie angles, and that part of each of the skid beams which fell within the foundation.

No guy wires were used, since the traffic of the plaza made any such arrangement impracticable. The uplift-lug arrangement, unwedged during the move, remained in place to resist any tendency to overturn in high wind. As an added precaution, the skid beams were anchored through their foundation to rock. These precautions, obviously guarding against an unlikely occurrence, were easy to accomplish and not expensive, and were used in view of the importance of the cargo in transit.

• **Crane work**—Crane-transfer of the two easterly towers was simple, the principal features being the location of the crane and the method of pick-up.

Distance of the move was short enough to allow the crane to make the transfer by swinging only. This was done by spotting the crane at the center of a 28.5-ft rad. circle passing through the old and new tower positions. Thus by booming out 28.5 ft the crane could pick the tower up, swing it and set it down.

Crane boom and jib length was 140 ft, and the rig had extended crawlers to provide ample stability for the 18-ton lift. The hook engaged an I-beam spreader with slings 27 ft

(*Continued on page 32*)

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long hanging from the outer ends of the spreader. This assembly was adequate to clear the 24-ft high floodlight cupola.

Slings were hooked to lifting eyes welded near the tops of tower legs, which terminate underneath the platform at the base of the cupola.

When the new base was ready and the old one had been demolished sufficiently to expose all tower steel a spiral stairway in the tower was shored by a needle beam welded to the tower legs. Then the lifting tackle was placed, and a slight strain taken on the tower. The existing anchor bolts were then burned off to free the tower. The lift was completed in five minutes, and the tower was bolted down in its new location.

During the entire relocation of the four towers, normal bridge traffic flowed without interruption. Temporary electric service was provided, and the floodlighting was always operable. A nominal amount of shimming was done in the final positions in order to make each tower exactly plumb.

The two methods were comparable on a cost basis, since the demolition and reconstruction of the granite masonry was a major item of expense.

• **Credits**—The work was carried on under the supervision of The Port of New York Authority by Byron M. Gruver, senior resident engineer, acting for H. G. Dacancq, engineer of construction and John M. Kyle, chief engineer. Charles Goodman, president of the Grow Construction Co., conceived the skidding method, the authors handled the design and engineering and Eugene Bleecker was field superintendent.

SOIL-CEMENT PAVING for flood control dam spillway apron was mixed in place. Paving reduces maintenance, protects dam from 100-year storm flow.

Spillway apron paved with soil-cement

John W. Bryant
Chief Engineer
Riverside County Flood Control and Water Conservation District
Riverside County, California

Spillway aprons for two flood control dams in Riverside County, Calif., have been paved with soil-cement to reduce routine maintenance and, in the event of spilling, to protect the earthfill dams. Since the channels are designed to handle floods from a 100-year storm, frequency of flow will be rare—pipe outlets handle all but emergency drainage.

The aprons, built early this year on Woodcrest and Harrison dams, are located at the crest of overflow spillways adjacent to earthfill dams. After considering the use to which the spillway section was to be subjected, it was felt that soil-cement was particularly well adapted. The low initial cost of construction also was an important factor in selecting soil-cement. Construction of the aprons was completed without difficulty even though crews had no previous experience in soil-cement work.

The existing soil in both spillway aprons was decomposed granite. Because the soils were not of the same gradation, 9% cement by volume was required at Woodcrest, whereas 11% was required at Harrison.

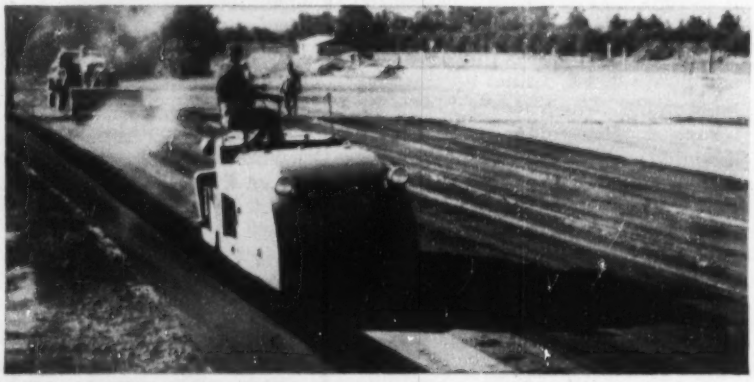
• **Procedures similar**—Procedures were the same on both dams. The soil was pre-wet the night before construction, so only a little water would be required after the cement was mixed with the soil. Bags of cement were spaced, broken open and the cement was spread with hand rakes. Two passes of a pulverizing mixer followed.

Water was added by a tank truck with a spray bar while mixing continued until the optimum moisture content was reached. The soil-cement mixture was then compacted by at least two passes of a five-ton roller. Further compaction was obtained by driving rubber-tired equipment over the area until the surface was well knit. The completed soil-cement apron was then kept moist for several days by spraying.

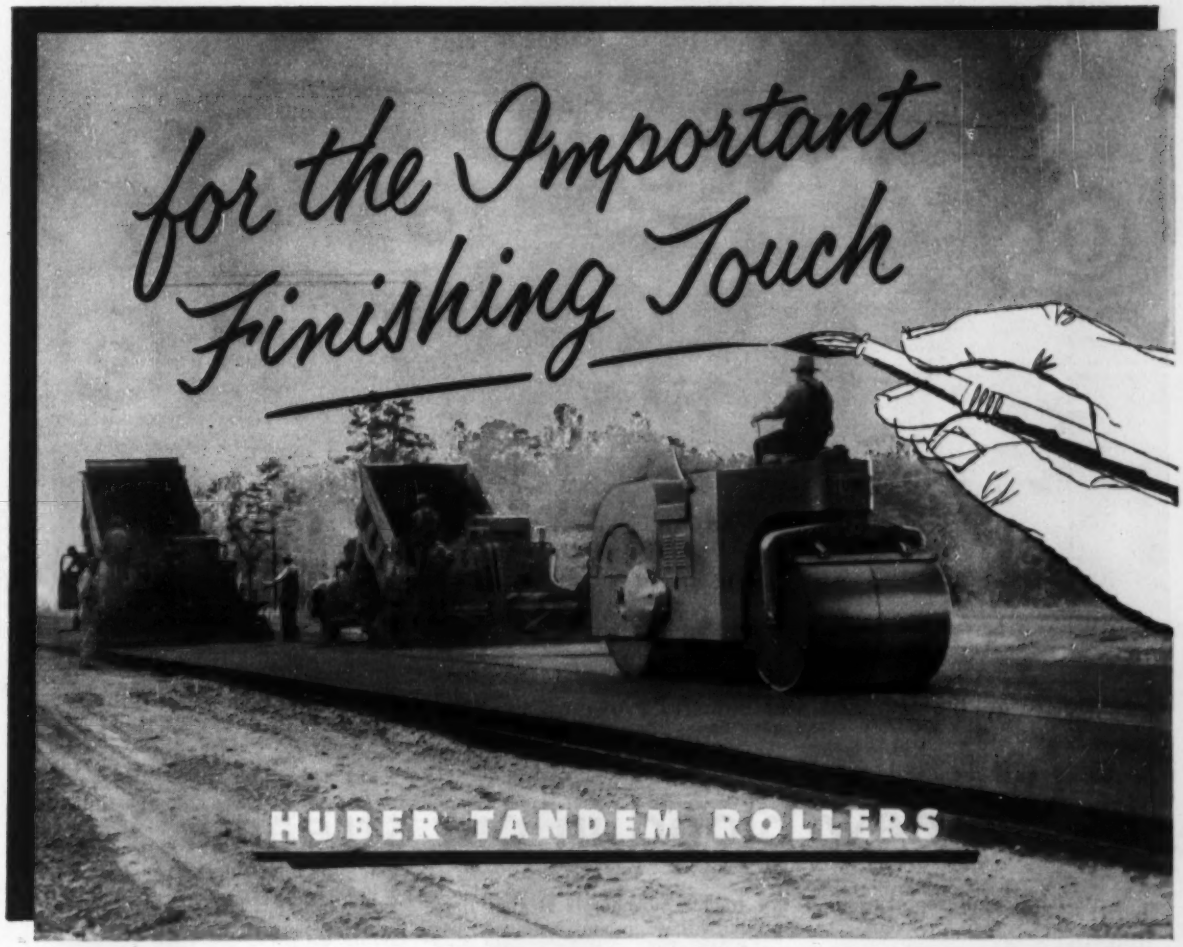
Soil-cement was built 4-in. thick on Woodcrest, and 3-in. thick on Harrison Dam. Total cost of the soil-cement on Woodcrest Dam was $0.62 per sq yd for an area of 2055 sq yd, while the cost on Harrison Dam was $1.12 for an area of only 600 sq yd. The higher cost on Harrison was due primarily to the smallness of the area treated.

This method of protection for the two aprons has proved very satisfactory, and it is the intent of this office to make further use of soil-cement when similar projects are built.

David Mann, senior engineer, and George Gelzer, foreman, for the Riverside County Flood Control and Water Conservation District supervised construction. The crew consisted of eight laborers and equipment operators.



ROLLER COMPACTS soil-cement mixture. Cost was $0.62 per sq yd on one dam, $1.12 per sq yd on another.



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Barge traffic on the increase and industry crowding the banks indicate that . . .

There's new blood in our streams

An ENR staff report

With the St. Lawrence Seaway at long last nearing the construction stage, the greatest inland waterway system of them all—the Great Lakes—will be made greater still by admission of more ocean-going traffic.

But what of the nation's lesser inland waterways, navigable rivers and canals that total near 28,000 miles and represent an investment to date of close to $2 billion, and an endless expenditure of time, work and ingenuity by construction men? Have they been a sound investment? What is their function, their effect, their future? ENR's staff set itself to see what answers it could get. The report that follows is the result.

• **Business is good**—River haulage now seems to be in its heyday. There is a lot of money being spent on the waterways themselves, on vessels to handle their increasing traffic, and on industrial plant and terminal facilities all along their banks.

One measure of inland waterways is their proportion of total freight transported, measured in ton-miles. This proportion has grown gradually over the years—with a setback during World War II, possibly due to need for fast freight movements at that time.

But by 1952 inland waterways carried 5.7% of the nation's total freight. That year the Great Lakes carried 9.2%; pipe lines, 13.9%; trucks (intercity), 16.3%; and railroads 54.9%. Back in 1943, inland waterways carried 2.6% and railways, 71.9% of the annual total.

Measured by mileage, 28,383 miles of inland waterways (not including the Great Lakes) stack up against about 225,000 miles of railroad, near 260,000 miles of pipeline, and close to 2 million miles of paved highway.

• **Rebirth**—Thirty-five years ago, when most private and state-owned waterway ventures had folded up or were barely alive, the cry was, "Let the government improve the channels and the commerce will follow!"

It looks now as if the rabid waterways rooters of that day were largely correct. Of course, they didn't know how many years it would take for the commerce to follow. They may not have meant that the government should improve every channel it has improved. And they had little appreciation of how big a part terminal structures and handling facilities would have in bringing commerce to the waterways of the country.

But time has borne out their claim to a very large extent, and today, inland waterways are assuming improved status among transportation media, with a resultant building boom along navigable streams of the U.S.

• **Long struggle**—It has not always been so. Back in 1920, when Charles Whiting Baker wrote his comprehensive review of the situation for ENGINEERING NEWS-RECORD (see above, right), inland waterway traffic was at its nadir; its future looked its blackest.

Mississippi steamboats had had their day. Climax of their prosperity was in the 1870's when they had indeed been a prime factor in development of the Midwest.

Then came the railroads, capable of faster service and more certain schedules; able to go anywhere track could be laid. And as a near-fatal blow to the riverboat's claim on heavy freight movements, there followed the Bessemer steel rail with its freight weight capacity.

Between 1875 and 1900, inland waterway traffic declined rapidly—except on the Great Lakes. By 1900, only New York State's Erie Canal was at all important, and it was fast becoming obsolete. By 1918, the once thriv-

Outlook for the inland waterways . . .

. . . in 1920

"Traffic on nearly all inland waterways has all but disappeared."

"Competition of waterways with railways is no longer of any consequence."

"It has become evident that there is not sufficient profit in water transport to attract capital."

"Advocacy of waterways rests upon the (false) assumption that water transport is cheaper than railway transportation."

"The taxpayers bear the entire cost of making and maintaining the channels used."

(As reported in ENR issues of Jan. 1 to Jan. 29, 1920, by Charles Whiting Baker, consulting editor)

. . . today

Grown to about 80 billion ton-miles per year, traffic has nearly tripled since 1946.

Waterway barges now carry about one-eighth the railroads' estimated ton-mile total, but appear to be gaining relatively faster.

Aggressive operators are optimistically putting about $55 million annually into new barges and tow boats.

Present rates per ton to the shipper are often half rail shipment cost for comparable hauls—on waterways belonging to U. S.

Construction and maintenance of toll-free inland waterways are still mostly the taxpayers' burden, although some projects require local participation in the cost of construction.

ing steamboat commerce of St. Louis had dwindled to the point where a whole year's shipments didn't equal railway commerce of half a day.

• **Questionable premise** – Charles Whiting Baker, and others of his time, argued in 1920 that waterways advocates based their case on conditions of the past. He called for sound engineering and economics and public expenditures on only those waterways projects which would furnish needed facilities at the least total cost –that cost including not only the navigable channel, but the terminal facilities, the equipment and the route, with depreciation and interest, as well as operating costs and costs to shippers and receivers.

But popular concepts prevailed: Improve the channels and commerce will follow; water transport is cheaper than rail; waterways are needed to keep rail rates low. The Erie Canal, which had "made" New York City, was rebuilt for more than $100 million into the more extensive (now 522-mile) New York State Barge Canal System. And in the 20's the federal government about doubled its appropriations of the previous decade for waterway development.

In the '30's, federal spending nearly tripled and in the 1941-50 decade it went up again by about 50%. Through fiscal 1952, federal funds spent for navigation purposes on inland and intracoastal waterways (not including seacoast harbors and the Great Lakes) had totaled over $1.7 billion.

• **Spent funds**–Some insist that the annual river and harbor appropriation bill is and has always been a "pork barrel" bill, that most federal navigation funds have been ill spent. The truth is rarely so extreme. Surely some navigation money has been spent in wrong places. If sound engineering and economics had prevailed, some existing projects would never have been built. If tolls had been charged on canalized streams to pay costs of construction, operation and maintenance, many waterways would have lost some of their economic advantage, and much of their business with it.

But the past is gone. The $2-billion investment has been made. The 28,000 miles of inland waterways do exist. What of their worth and their influence?

• **Better times**–In today's economy, inland waterways are coming into their own. The Great Lakes have always been a going concern. The St. Lawrence Seaway will be completed finally in the next decade and will pay for itself in tolls for the passage of ore boats and others. And on the great Mississippi, Ohio, Tennessee, Gulf Intracoastal, and Atlantic Intracoastal waterways, bulk transport has hit an upgrade as steel, autos, chemicals and petroleum products have joined grain, coal, rock products and other construction materials as freight moving inland by barge and self-propelled vessels.

Development of the twin-prop diesel tow boat roughly has had the same beneficial effect on waterway operations as the diesel locomotive has had on the railways. And mechanization of loading and unloading operations has been even more a factor in faster, cheaper transport by water. For capacity of any waterway is truly fixed by capacity of its terminals, and total cost of water transport is determined largely by cost of handling–actual towing costs being a relatively minor factor.

Here and there, as on Ohio's Muskegon River in 1953, operations of little-used locks are being discontinued. But, in general, traffic is on the increase and navigation projects to cost millions are under way and planned. For the Ohio River alone, a billion-dollar improvement program has been forecast–a 20-year rebuilding project to replace all but four of the existing navigation structures.

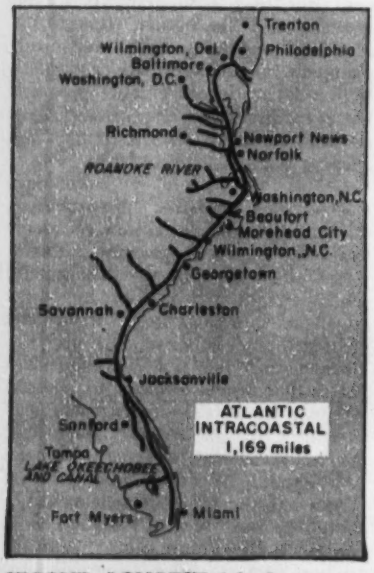
• **Rebuilding needed**–Replacement of dangerously aged navigation works on the Ohio has high priority, but the Corps of Engineers also has on its schedule eight structures for the Monongahela, four for the Warrior and eight others elsewhere. In all, the Corps figures that a $55-million to a $60-million annual expenditure should be made for 20 years to put waterway structures, navigation locks and dams, into safe operating order.

It should be noted that far less than what the U. S. Engineers think should be built annually actually sees construction appropriation. Amounts budgeted for the inland waterways for fiscal years '53, '54 and '55 have been

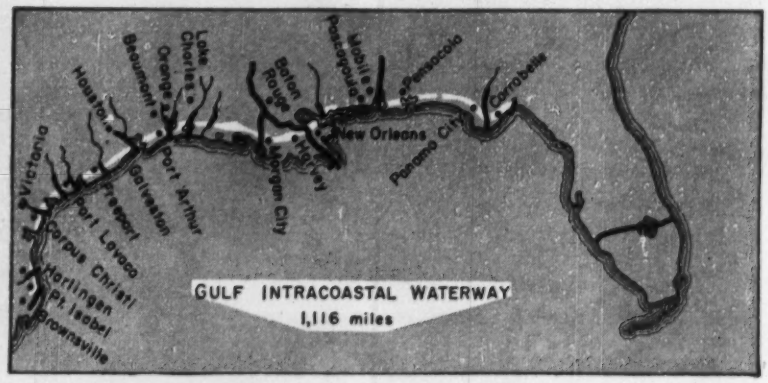
(*Continued on page 36*)

. . . How seven longest waterways share total

OLD MAN RIVER, still rolling along, carried 38% of all inland waterway traffic in 1950—traffic measured in ton-miles.



SECOND LONGEST inland waterway, along Atlantic Coast, carried only 1% of ton-mile traffic in the same year.



PROTECTED PASSAGE inside Gulf coast ties growing Texas ports to New Orleans and the Mississippi. This route carried 10% of all inland waterway traffic in 1950, but its ton-mile total has jumped 38% just in last two years.

respectively $15.4 million, $9.8 million and $14.7 million.

Major navigation works now under construction include the Cheatham and Old Hickory lock and dam projects, respectively above and below Nashville on the Cumberland River; Lock 19 at Keokuk, Iowa, on the Mississippi; the St. Anthony Falls project, to open an upper Minneapolis harbor; and Demopolis Lock and Dam, replacing three old ones on the Tombigbee River above Mobile, Ala. All these were described in ENR's annual review of major projects in the Feb. 18 issue.

Other new navigation works under construction include those at McNary Dam and The Dalles, which together with Bonneville and the proposed John Day Dam would canalize the Columbia River to above its confluence with the Snake. Further proposed works on the Snake River could bring inland navigation to Lewiston, Idaho.

• **Proposed projects**—Now that the St. Lawrence project is settled, the big national navigation issue is the question of deepening the 25-ft Delaware Estuary (not technically an inland waterway) to 35 or 40 ft of the vicinity of U. S. Steel's Fairless Works at Morrisville, Pa. U. S. Steel wants a 40-ft channel; a 35-ft channel has been called sufficient to open up 60 miles of river bank between Philadelphia and the steel plant to ocean traffic of normal draft. The 40-ft channel would cost an estimated 40% more than the 35-ft. It is now proposed by the Corps of Engineers that U. S. Steel and others who may need the extra draft pay the extra cost.

The Venezuelan iron ore that puts pressure on for deepening of the Delaware Estuary is similarly a factor in pushing Warrior River improvements in Alabama—at least to the Port of Birmingham. Demopolis Lock and Dam, referred to previously, is now under construction there. Tuscaloosa is completed; Warrior is to start in '55, and Jackson is yet to come. The four together will replace 11 existing structures.

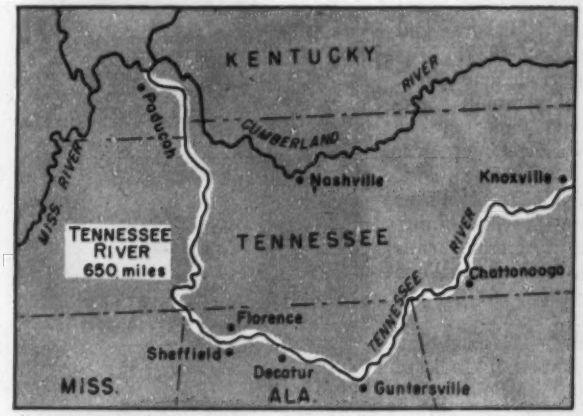
There is pressure from other directions—including pleasure boaters as well as shippers—for a cross-Florida canal 9 to 12 ft deep to tie the Gulf and Atlantic Intracoastal Waterways. Others would have a missing link inserted across New Jersey so that shipping and boating could avoid open ocean off that state's northern shore.

The objective, expressed by the idealists, is protected passage from Massachusetts to Mexico. But there is a big question as to how much of this navigable inland water is needed by commerce, how much is more strongly desired by pleasure craft sailors.

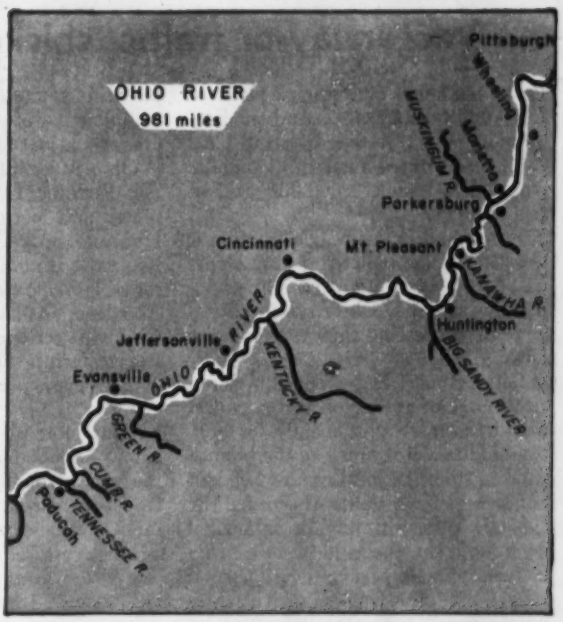
Of the two major intracoastal systems, the Gulf Intracoastal Waterway carries far more commerce than does the Atlantic—nearly ten times as much in 1950. And at the rate industry is growing in the Texas and Louisiana area, the Gulf Intracoastal Waterway—along with the lower Mississippi—is far more demanding of continuous improvement.

• **Terminal improvements**—A key to which of the nation's inland waterways are going concerns is the activity of terminal builders as well as of the industries along the banks.

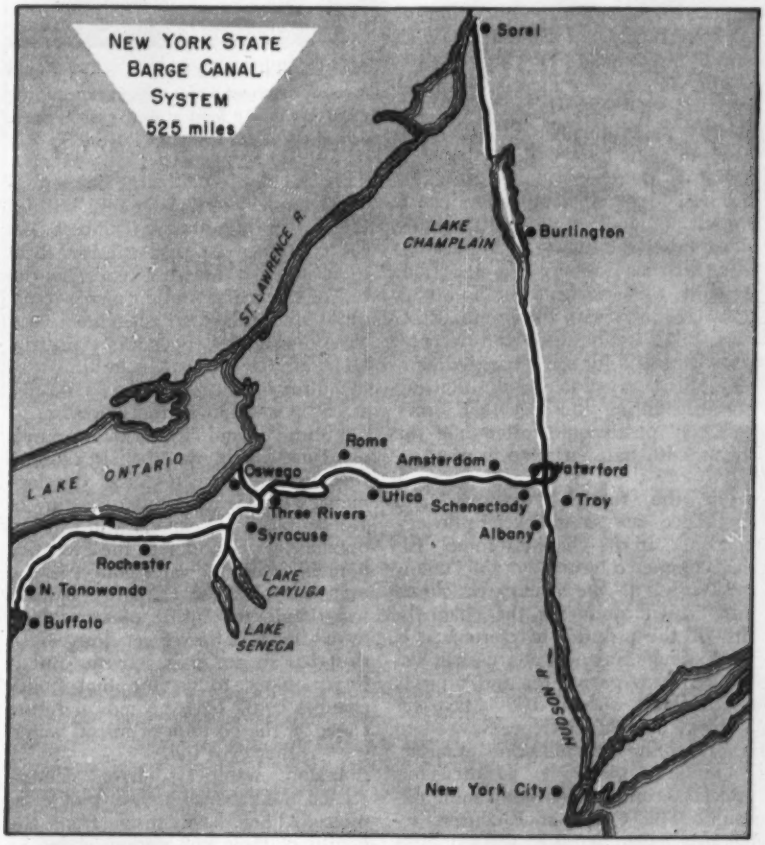
A year ago the American Waterways Operators, Inc., reported one freight landing for every six miles of the 650-mile Tennessee River. Since then, six more facilities have been put under construction. At Gunterville, Ala., O. T. Smith-Barry Co., Guntersville Petroleum Co. and Nashville Coal



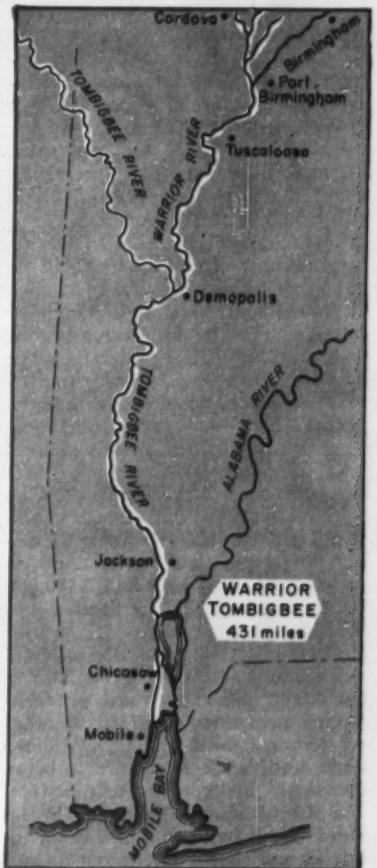
THE SYSTEM TVA BUILT took about 2% of inland water ton-mileage in 1950. To the north, two big new locks on Cumberland River either side of Nashville will improve that stream.



DUE FOR REBUILDING—a 12-ft channel to Pittsburgh through new locks could cost nearly a billion dollars. Ohio River accounted for 17% of 1950 traffic.



STATE OWNED enlargement of New York's famed old Erie Canal still functions seasonally and in 1950 took about 2% of inland stream traffic.



BIRMINGHAM'S OUTLET to the Gulf took on added importance with development of Venezuelan iron ore. Its 1950 fraction of waterways traffic: 1%.

Co. are building termials. Tennessee lakes are sites for three other dock programs: at Hales Bar Lake, Tennessee Products & Chemical Corp.; at Pickwick Lake, Wood Processing & Sales, Inc.; at Boone Lake, J. D. King.

On the Mississippi—between Cairo, Ill., and Minneapolis—terminals have almost tripled in number (to 136) since 1940. Two more facilities are to be added. Muscatine, Iowa, will

(*Continued on page 38*)

. . . Waterway or traffic, chicken or egg?

erect a terminal and storage plant of 2,000,000-gal capacity. And at East Winona, Wis., Sterling-Midland Coal Co. has scheduled a half-million-dollar terminal to handle 1,000,000 tons of coal annually.

In Memphis, Tenn., construction is close to 50% completed on Presidents Island, the new industrial site which will be surrounded by Mississippi waters. Industries and their terminals are moving in.

Baton Rouge, La.,—wedged between an upsurge of petroleum and chemical industries—has a port mainly for bulk commodities. But much of the bounce is taken from the local waterway boom because general traffic is limited by a single public facility, a municipal dock built in the mid-twenties. To increase trade in packaged-type general cargo, the city has planned a new public port. A greater Baton Rouge Port District and Commission is now in business, and construction of about $15-million of port facilities is expected to be completed in three years.

The St. Louis area already has 28 terminal structures. Now, west of Granite City, Ill., a new $1.5-million terminal is being completed by the Bi-State (Missouri and Illinois) Development Agency. Steel mills and fabricators will be among the first to use the facility, located on an 8-mile canal above the new Chain-of-Rocks locks (ENR Feb. 19, 1953, p. 47).

The Chicago Regional Port District is planning a ship-barge-truck-rail interchange terminal on Lake Calumet. Its initial unit is to be a $3-million transit shed with devices for loading and unloading barges and ships. The entire terminal—finished with transfer facilities, open wharfage, tank farm, grain elevator—may cost $10 million. It would handle all types of general and bulk cargo.

In the same area, but on the Chicago Sanitary & Ship Canal, North Pier Terminal Co. is spending $1 million to rebuild its facilities. And on the Calumet-Sag Canal, a $350,000 terminal is projected by Steel Transportation Co.

On the Cumberland River, Nashville, Tenn., has 20 river terminals in operation, about one-third of them serving petroleum interests. Another oil terminal, with pipelines, storage tanks and rail connections is being completed by Sinclair Refining Co. The Cumberland Storage & Warehouse Co. is building a facility for receiving and storing steel products and hardware. E. I. du Pont de Nemours Co. Inc., is considering a terminal site for river shipment of chemicals and other products to its Old Hickory plant, but plans may not jell until completion of Old Hickory and Cheatham locks in about 1957.

Ohio River interests are active, too. Elk Refining Co. is planning a terminal and petroleum tank farm at Huntington, W. Va. At Uniontown, Ky., work is under way on a coal dock for a Nashville Coal affiliate. And near Aberdeen, Ashland Oil & Refining Co. will construct a terminal with storage facilities for 1,000,000 gallons of petroleum products.

• **Many more planned**—These are only a few scattered examples to indicate the general picture. Cities on the inland waterways need and are getting more general-cargo terminal facilities. In the past, emphasis has been on specialized loading and unloading devices provided by private industry. In many areas, the trend is now toward municipal or authority operation of facilities capable of handling a wide variety of products.

The same gradual increase in inland waterway traffic which has led to the increase in terminal building has also had something to do with the boom in industrial building along navigable rivers. Today's rabid waterways boosters claim much industrial building along the waterways, the implication being that navigation is the attraction. Actually, while navigation is an attraction it is not always the prime attraction. Prime use of our inland rivers by industry is still for water supply. However, there is certainly no denying nor discounting the fact that heavy industrial plants quite often hug the stream with transportation in mind.

• **For the future**—Waterways and commerce are a chicken-or-the-egg question. If the channels come first, the commerce generally will follow eventually. If the commerce comes first, it will press for the channels. And if the pressure of commerce is great enough, inland water passage becomes worth paying for and projects can be built without 100% taxpayer backing. The St. Lawrence Seaway, to be paid for by tolls, is a prime example.

On less obviously advantageous projects, economic analysis is more difficult. The Corps of Engineers religiously recommends to the Congress only projects on which benefits equal or exceed costs. Traffic that will use a proposed waterway and savings to result from such use are compared with costs.

Benefit is generally considered the cost to shippers by the cheapest available alternative, less the cost to shippers of transportation by waterway.

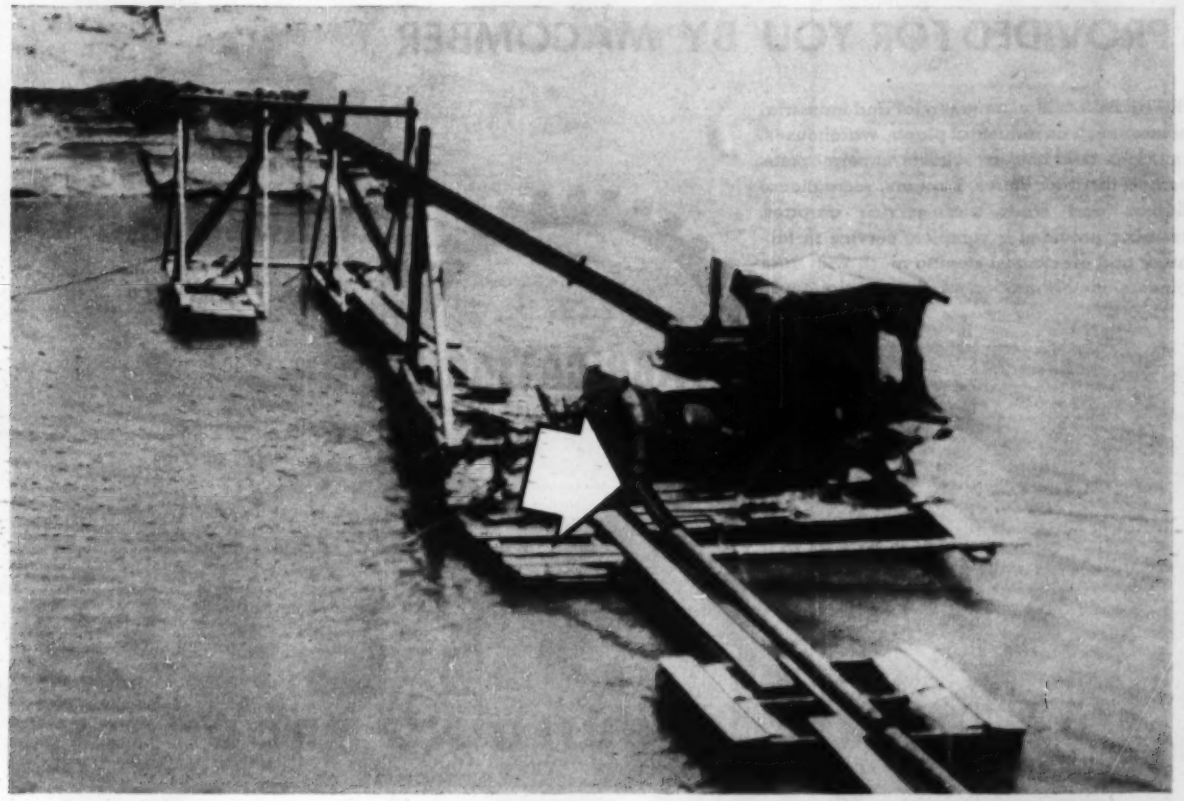
NAVIGATION STRUCTURES should account for about a $60-million expenditure each year in the fight against obsolescence, according to the Corps of Engineers.

This includes cost of barge line service and terminal and transfer costs but not the cost of the waterway. Therein lies the continued taxpayer subsidy. And there also lies the rub insofar as the rest of the transportation media—especially railroads—are concerned. Of course, waterways operators claim the taxpayers' investment is returned in the form of cheaper prices, reflective of cheaper waterway transportation.

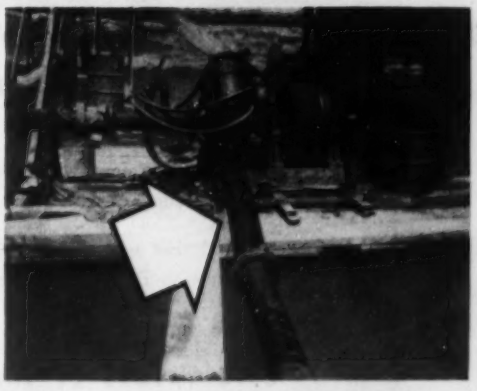
Future inland waterway improvement necessarily must be part of comprehensive water resource development, which is now under scrutiny of Hoover task force experts who will recommend water policy to the executive branch. National water policy, in the executive plus the legislative branch, will decide the future of our inland waterways to a very great degree—just as it has shaped past activity. But it is reasonable to assume that policy changes could have no radical future effect on the position of inland waterways as they exist today.

Inland waterways have demonstrated their use as highways of commerce. They have arisen from the depths of their lean period, about 35 years ago, and it is apparent that the important place among the means of transportation which they enjoy today they will continue to enjoy because of the call for building against obsolescence, deepening of channels, heightening of lifts, enlarging of terminal facilities and increasing of freight handling efficiency.

Dredging for sand with the help of U. S. Rubber's Giant Sand Suction Hose and Giant Dredging Sleeves



Wet, heavy, bulky, the sand requires strong vacuum to draw it through the suction hose. Only the highest quality tube can withstand the sand's cutting action, plus the jolting of extreme suction and the constant movement of the barge or pontoons. United States Rubber Company carefully engineered the hose to meet these operating conditions. The particular job shown above uses U. S. Giant Sand Suction Hose and U. S. Dredging Sleeves—while U. S. LPG Hose conveys LPG to the pumping equipment. These are examples of the "U. S." quality products that are paying off hour by hour in every type of construction work—because they *have greater durability, allow men to work without interruption and delays.* These products can be obtained at any of the 27 "U. S." District Sales Offices, or any selected "U. S." distributor. Or write to address below.



This close-up shows that U. S. Giant Dredging Sleeve acts as an elbow to take the rise and fall of water and the vibration of pumping equipment to prevent the pipe from tearing loose and stopping production.

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"U. S." Production builds it.
U. S. Industry depends on it.

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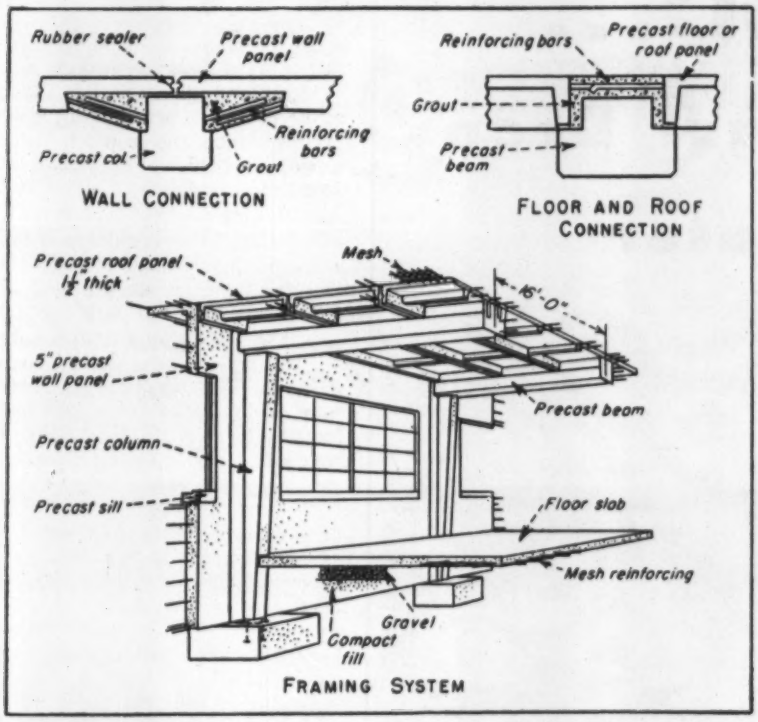


ALL CONNECTIONS in walls, floors and roof decks will be made monolithic to assure adequate earthquake and wind resistance.

Precasting wins out in Azores

Despite non-uniformity of members, a saving of 20% was effected on U. S. Air Force buildings

With two strikes against it to start, precast concrete construction proved 20% cheaper than an alternate design in steel and concrete block in the bidding for an eight-building project at an Air Force base in the Azores. The job is scheduled to get under way this summer.

Strike one was that this job called for a great variety of structural and wall units. Strike two: scattered over a wide area the buildings will be one- and two-story shops and offices. Five of the buildings will be simple rectangular one-story structures, while the other three will be two-stories in height.

The first total bid price, for the job in steel and block, with wood and block to be used for two buildings, was $1,243,295, including heating, ventilating, plumbing and electrical work.

After the steel bid, which was considered high, the East Ocean District of the Corps of Engineers (in charge of the project) decided to get a bid on precast concrete, and had alternate plans drawn up.

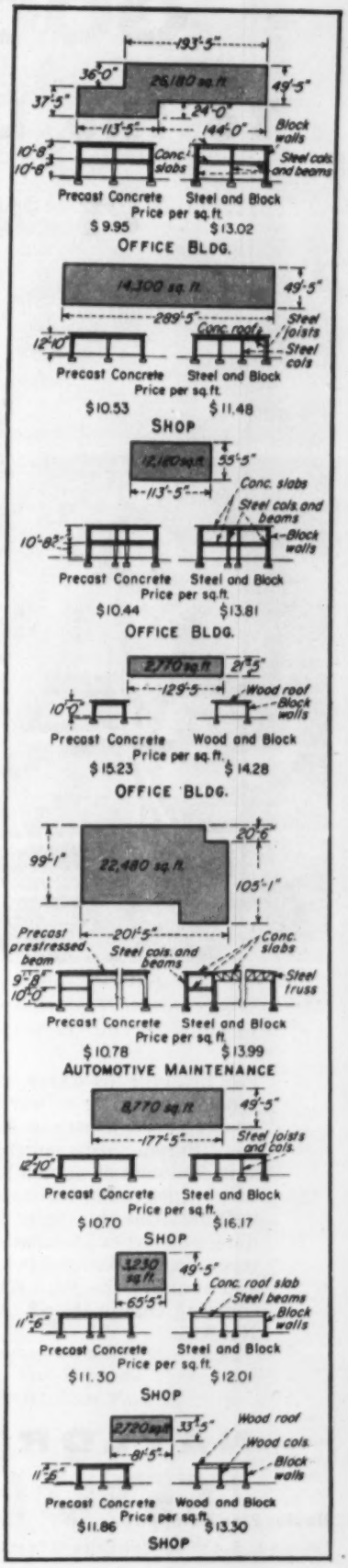
Total bid for precast concrete was $984,956. The accompanying drawings give details and unit costs for all the buildings in the two different designs.

• **A single**—Close study of the variety of building designs produced a great deal of standardization in small individual structural units that go to make up the buildings.

Thus the various buildings in the project could be put together with standardized units that would involve only minor dimensional changes, in the buildings themselves, from the original design specifications.

To complicate the design further, the site is in an earthquake zone, and mechanical joints had to be eliminated. Instead, precast members will be tied together by reinforcing through a grouted joint (see details in drawing above). The earthquake load was taken as a lateral force equivalent to 5% of the dead load plus one half the live load. Wind loads in the

(Continued on page 42)



COST COMPARISONS (at right) for alternate design of air base buildings in the Azores.

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Azores are high also, and for the one- and two-story buildings a design factor of 20 psf for pressure and 13 psf for suction wind loads was used.

Mechanical plans had to be rearranged, and a new heating system planned since the concrete panels would have a different "U" factor than would block walls.

• **A double**—What might appear to be a second disadvantage was the fact that the buildings are scattered over so wide an area that little could be gained by setting up a central casting site for all the various sizes of precast members. Wall panels, in the form of tilt-up slabs, will be cast at each building site, as also will the beams and columns.

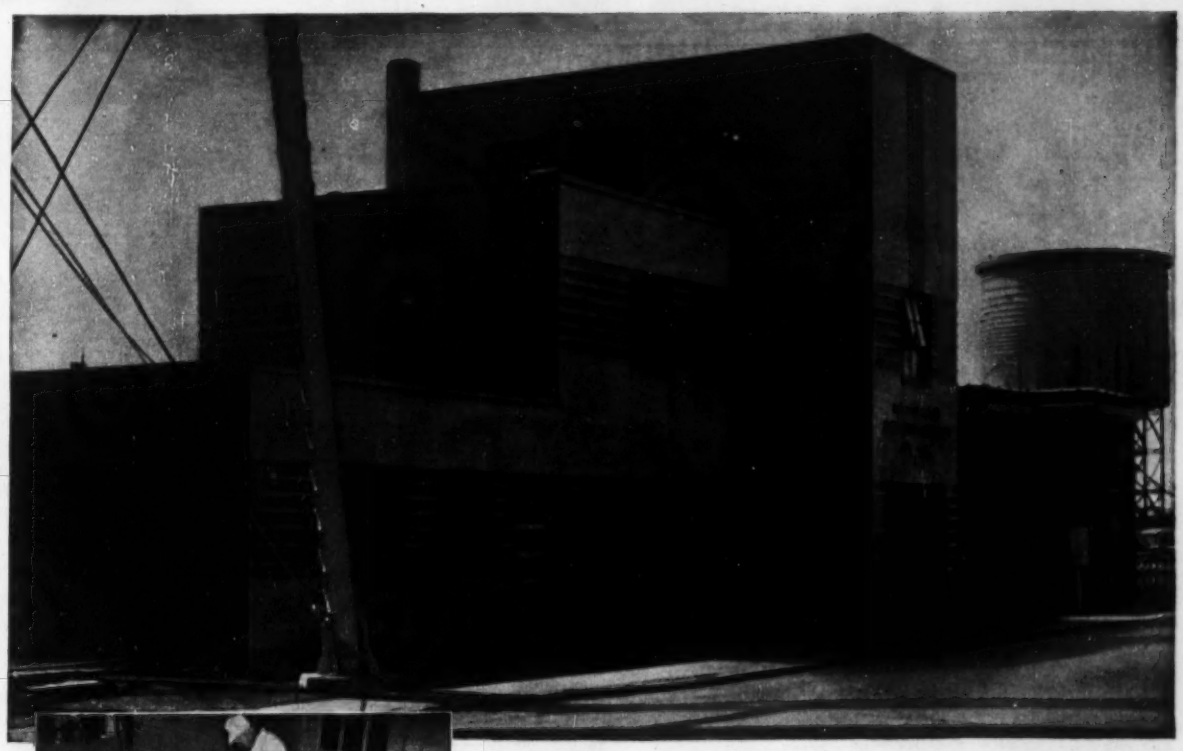
Wall panel connections will be open joints big enough for water to drain out and will be made watertight by introducing a rubber sealing strip between panels and column face. The open joint may be packed at a later date if desired. Wall panels will remain untreated, but may be painted with silicone paints.

Prestressed concrete beams will be used in one instance in the job: for roof girders over a two-story high central section of the automotive maintenance shop.

Roof deck channels and floor slab units are the only two items on the job that will be cast centrally. The tension flanges and stiffening elements of the roof channels dictate single casting—not in stacks—with 40 re-uses obtainable from the plastic-coated plywood forms. Roof deck members will require a total of 24 different sizes of molds.

• **And home run**—The Azores have native construction labor that is familiar only with brick and mortar work, but is extremely good at it. This fact would have seemed sufficient in itself to make a steel and block job cheaper than precast concrete. Steel could have been fabricated in the States and erected by U. S. personnel, while excellent and inexpensive block work could have been done by native labor. Nevertheless the precast job won out despite the fact that supervisory crews will have to train and direct the native workmen in unfamiliar techniques.

The precast concrete job was designed by Roberts & Schaefer Co., architect-engineers of New York, and the contract for precast concrete construction was awarded to the Macomber Co., Los Angeles, Calif. In charge for the Corps of Engineers are Col. H. G. Lux, Atlantic District Engineer, and Maj. G. L. Youngblood, resident engineer.



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Permutit recommended the equipment shown at left, plus a carbonation tank. Turbidity is reduced to only 3 ppm . . . iron to 0.1 ppm. Hardness and alkalinity are reduced to specified requirements. Because of high Precipitator efficiency, each filter is backwashed only once a week for 20 minutes.

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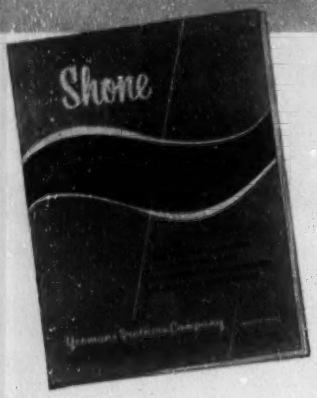

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- Superior Features—a careful description of those advantages that mean Shone efficiency and Shone dependability
- Standard and Special Types—Shone models to meet different needs

This basic information is supported by selection charts in color, engineering drawings with dimensions and typical specifications.

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VEHICULAR SUBWAY provides two 24-ft roadways with 3-ft safety walks. 1,767 sprinklers, "tripped" by rapid temperature changes—rather than by a prescribed high temperature—guard against the spread of fire in the tubes even in sub-zero weather.

Unit blower system in vehicular subway may ease cut-and-fill tunnel venting

The formal opening of the Battery St. Tunnel, in Seattle, Wash., was notable as the city's first venture in vehicular subway construction, but it also gave the city a chance to try out an unusual ventilating technique (ENR, May 7, 1953, p. 43) under actual traffic conditions.

The 2,134-ft subway, built with two northbound and two southbound lanes, was constructed by cut-and-fill technique to run under another north-south street. Its purpose is to provide a direct limited access connection between the Alaskan Way Viaduct on the south and Aurora Avenue, leading to the Pacific Highway on the north.

The upper street—with its convenient intersections—will carry local traffic, leaving the subway free for bypass traffic.

Cut-and-fill operations dictated a rectangular cross section for the subway, and the unlimited supply of air in the street above suggested the practicability of using unit blowers instead of conventional ventilating methods that require supply and exhaust ducts and an expensive central blower and control building.

The system decided upon consists of 72 axial-type supply fans, 36 in each of the twin tubes. Each fan is capable of forcing 15,000 cfm of fresh air into the tunnel from the street, building up a pressure that forces contaminated air out of the tunnel through exhaust vents.

The unit blowers were placed in individual intake chambers. Chambers and fans were spaced at 58-ft intervals with intake gratings located in the sidewalks above.

• **Cheaper too**—Besides being more adaptable to the design of the project, the accepted system saves the city more than $600,000, according to officials.

A conventional tunnel system would have cost an estimated $750,000, but the unit blowers went in for about $130,000.

"Breathing devices" suck air from various parts of the tunnel continually through a large detecting machine. When the machine records carbon-monoxide contamination in excess of one part in 10,000, in any part of the subway, it automatically turns on the fans in that section.

In order to test the efficiency of the ventilation, 200 city and state-owned vehicles were driven into the subway prior to the date of opening, and

(Continued on page 46)

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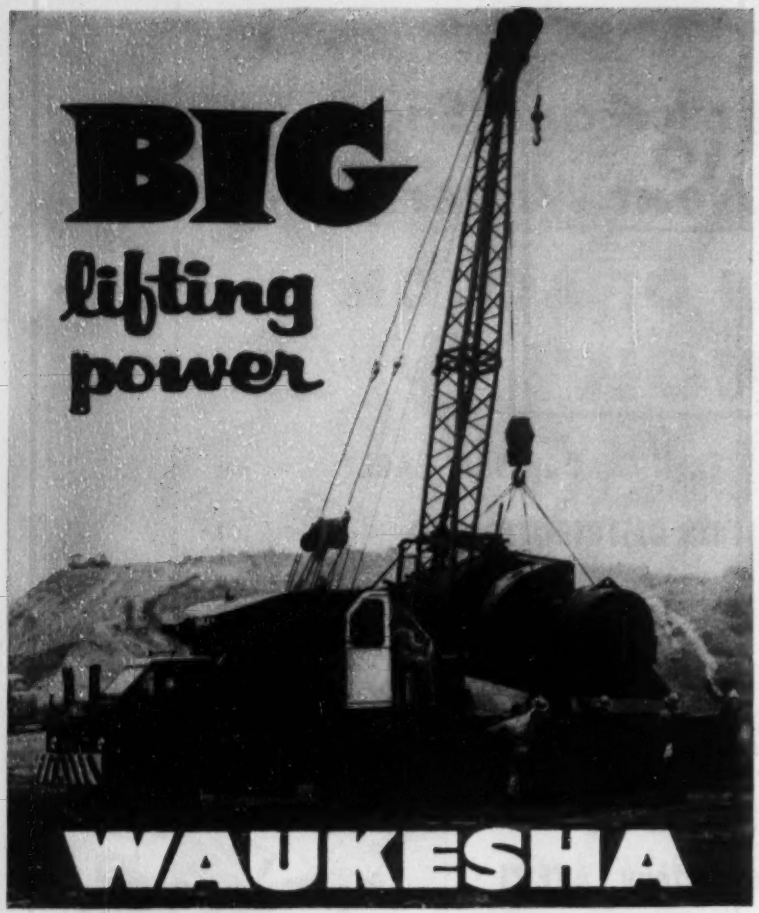

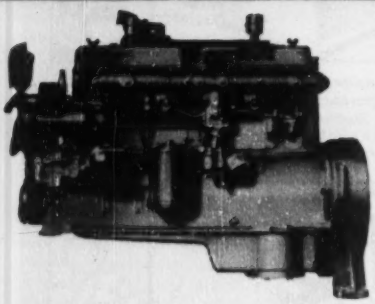

WAUKESHA 140-GK—GASOLINE powering this Insley WB crane has 6-cyl., 4½-in. bore. x 5½-in. stroke; 525 cu. in. displ., 137 hp. at 1800 rpm. Crankcase and cylinder frame cast as one unit. 3¼-in. 7-bearing forged steel crankshaft. Cylinder heads are interchangeable twin castings. Overhead valves. Cylinders are renewable wet-type sleeve castings for easy, economical servicing. Positive full-pressure lubrication. Send for Bulletin.

Here's action for you—64,000 lbs. of draw works is smoothly swinging up from a multiple trailer on a Shell Oil Co. lease near Ventura, Calif. The rig's mud pump weighed 72,000 lbs. The McElhaney Trucking Co. of Ventura did a neat job of placing it, too—easily and quickly—with this Waukesha-powered Insley WB Truck Crane, which they own and operate so proficiently. To knock down a complete derrick and load all its important parts on trucks and trailers, takes 'em only 8 hours. That means a good crew, a good crane, and a Waukesha precision power plant—fast and flexible, responsive and reliable. You get high fuel economy and low upkeep too, with Waukesha Engines.

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parked with their engines running.

Two minutes and 27 seconds after the engines started, the fans went on, and during the test, carbon-monoxide contamination in the air of the tube never exceeded more than four parts in 10,000—it maintained a steady one to two parts during most of the time.

When the $2.8-million subway project was in the proposed stage, the Bureau of Public Roads almost scotched the unit blower method of ventilation, insisting that central air supply methods should be used. Although the system finally was approved by the bureau, the city meanwhile put up an additional $1.5 million of its own funds, rather than wait for federal matching funds to be granted.

City bucks mill construction in battle for clean water

Battling to halt what they conceive as a major threat to their city's water supply and future development, Sacramento city officials this week were threatening injunctive action to halt construction of a $16 million paper mill on the Sacramento River above the city.

Because the fight centers around pollution questions seen as basic to all water supply development in the state, the developing fight between the city, Olin Industries (which hopes to build the plant) and the Central Valley Regional Water Pollution Control Board, has drawn wide attention.

Center of the controversy is the announced plan of Ecusta Paper Corp. (an Olin subsidiary) to build a mill to cost between $16 and $20 million on the river near Red Bluff, 150 miles upstream from Sacramento.

The regional control board—a state agency—already has agreed to permit "limited pollution" of the stream that would make plant construction and operation possible; and has set August 7 as date for a meeting that will draw up definite conditions to be permitted.

• **Draws fire**—But the "limited pollution" decision drew immediate protest from Sacramento officials, since the city depends on the river for its municipal water supply.

So concerned were city fathers, in fact, that they hired a private attorney—Stephen W. Downey—to fight the company's plan for the mill construction. Downey already has announced that he is considering injunctive action to halt construction.

The city also received not unex-

pected support from State Engineer A. D. Edmonston, long an advocate of the gigantic Feather River project that would permit exporting excess waters of the Sacramento and Feather rivers into southern California. Said Edmonston: "Gross pollution of the Sacramento would be fatal to orderly development of the water resources of the state."

• **Wider question**—Observers were agreed that the fight at Sacramento was only a local phase of what may be a much more significant matter:

The final result of the rulings, injunctions and other legal proceedings may set precedents that will be followed for years to come.

Other basic questions are of course involved. For example, how pure should the river be if some of its water is to be sent to other parts of the state; what exactly, are standards of purity; and many other questions. Many of these problems have been solved through the pioneering work of agencies in other states (such as the Ohio River Water Sanitation Commission), and many remain to be answered.

Seek heavier penalty for code violations

Hearings are being conducted before the Board of Estimate, in New York City in an effort to equip the city's building code with the "teeth" it needs for proper enforcement by the Department of Housing and Buildings.

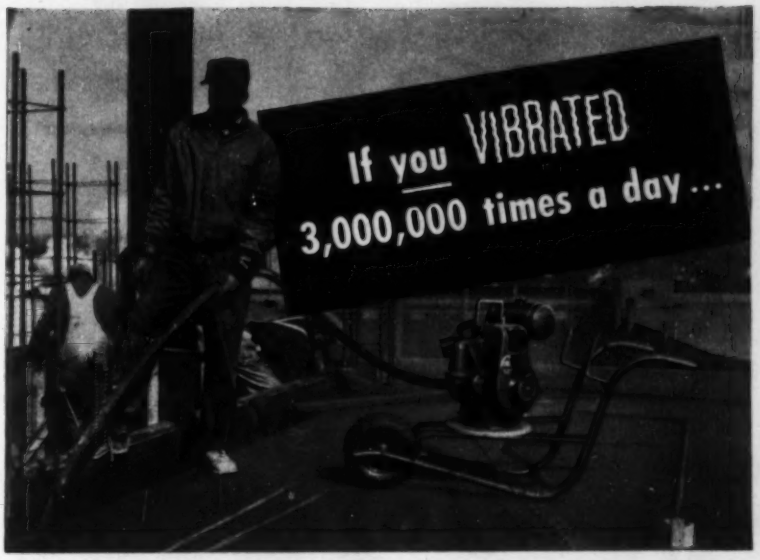
Punishments for violations—or "offenses" as they would henceforth be called—would be increased from $50, the present maximum fine, to $1,000 plus imprisonment for one year. The existing fines up to $250 for continued violations would be continued in force if the amendments are approved.

Opposed to the measure is the Commerce and Industry Association of New York, Inc., establishing its position on the basis of several factors. The association claims that, as written, the bill has many inequities:

(1) "The tremendous increase in punishment, coupled with elimination of the necessity for prior administrative notice of violation, leaves the individual open to drastic consequences not at all commensurate with an offense, and makes him subject to administration and government by men rather than laws."

(2) "There is greater punishment for an offense than for a misdemeanor.

(*Continued on page 48*)



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Offenses subject the guilty to $1,000 fine plus imprisonment, while misdemeanors are punishable by only $500 fine and imprisonment."

(3) "Temporary partial obstruction of an egress with a packing case or a blown light bulb in a stairway would subject the offender to punishment without any prior violation notice."

(4) "Repeal of provisions for terminating liability for prosecution and fine upon prompt remedying of a violation would remove any incentive for prompt rectifying of such condition whether its existence is deliberate or inadvertant," the association concludes.

FHA forecloses project, plans rebuilding, resale

Foreclosure notice on 230 duplex apartments has been filed by the federal government in Texas City, Tex., for recovery of a $2.5-million debt incurred by the builder.

Chelsea Manor, a 307-unit project, was built under P.L. 603 in 1947. Seventy-seven of the units are not in default, and will not be affected by the action.

Plans after foreclosure by the FHA are to remodel and individualize the units for resale. The federal agency will change buildings structurally and make each duplex a separate home, relieving the "project" look through use of varied landscaping, picket, redwood fences and the use of hedges.

After the alterations are completed the buildings will be sold to individuals for an average price of about $14,000. Financing has been planned on the basis of 5% down payment and 25-year mortgages at 4½%—average monthly payments will be about $100. Tenants now pay $65 per month.

$50-month salary voids $1.5-million contract

A salary of $50 per month received as president of the Denver Water Board, will cost Nicholas R. Petry a $1,405,000-million contract to construct a new library for the city.

City Attorney John Banks ruled that Petry's salary "is a trifling amount for the public service he is performing," but a city charter provision forbids city officials from holding any contract with the city. Petry had indicated he did not want to resign from the water board.

The bid of N. G. Petry Construction Co. for the six-story public library was the lowest submitted and Banks said it "would be the most advantageous to the city."

However, Banks advised officials to award the contract to the next lowest bidder or reject all bids and re-advertise. Officials said they probably will award the contract to Mead and Mount Construction Co., on its bid of $1,414,000.

Authority buys canal system as part of Texas water deal

In a $1-million deal, the Sabine River Authority, Texas, has acquired the Orange County Water Co., after months of negotiation for the property.

Involved are the 100-mi canal system and the Indian Lake Pumping Station that supply water to rice growers and industry in the Texas county.

The SRA, created four years ago for development of the Sabine River Watershed, was granted bonding power to the extent of $25 million. Funds for this purchase were raised through the sale of SRA bonds, and according to John W. Simmons, of Orange, the remaining $24 million in bonds will be sold as needed to carry on transactions connected with the program.

A new organization, the Orange Canal System Division of SRA, has been set up to operate the properties, Simmons said.

Municipal briefs . . .

• **Bucking the tide** – Wenatchee, Wash., voters recently defeated a proposal to establish a sewer service fee to be used to build a new sewage disposal plant. Wenatchee is the last sizable city dumping raw sewage into the Columbia River.

• **Program still rolling**–Syracuse, N.Y., which only a month ago adopted a plan for an $11.7-million investment in sewerage and plant, is now considering a $2.5-million plan for disposal of waste from its East Side Section. The newly recommended plan–one of three prepared by consulting engineers O'Brien and Gere–has no connection with the adopted one.

• **School building program**–Salt Lake City is engrossed in a school building program involving almost $10 million. There are 34 schools in the four-year plan–19 projects are in the hands of architects and seven more will reach the drawing boards before the end of the year. Eleven existing schools will be modernized this summer and nine are in the planning stage with work scheduled for later.

waterline

Construction Time Cut in Half

IN KALAMAZOO, MICH. a trench for 8" cast iron concrete-lined pipe was being dug in soft loose soil always in danger of caving in. Pipe was being laid at only half the possible speed of trenching—so excavating was slowed accordingly to minimize the risk of cave-ins.

The City Light and Water Utilities overcame this situation by putting a Cleveland Model 80-W on the job to handle and lay pipe. The one-man-operated 80-W not only performed all the pipe installation operations fast enough to permit full-time trenching but also performed the additional backfilling required by this job speed-up. Net result: construction time for the entire project was cut in half.

Write for descriptive literature and specifications or get the full story on CLEVELANDS from your local distributor.

THE CLEVELAND TRENCHER CO.

"Pioneer of the Modern Trencher"

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PRESTRESSED CONCRETE LICENSE AGREEMENTS NOW AVAILABLE

The Preload Company, Inc. is now granting exclusive territorial licences in the United States under its methods covering all fields of prestressed concrete construction, including tanks, pressure pipe, precast structural members, cast-in-place and continuous structures, pavements, etc.

The Preload Company, Inc. introduced prestressed concrete to the United States in 1935 and has been responsible for the design and construction of most of the major prestressed concrete structures built to date in the U. S.

Over 50 patents and patent applications relating to prestressed concrete, which offer many advantages to the licensee, are owned or controlled by Preload.

Licenses are also available in foreign countries, under corresponding Preload patents, in those countries in which Preload affiliated companies are not yet established.

Inquiries are solicited from responsible firms interested in prestressing in the field of construction service, contracting, or concrete product manufacture, and should include designation of territory, general description of organization and business activity, and a recent financial statement.

THE PRELOAD COMPANY, INC.

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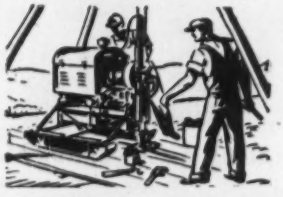
For more than sixty years, Sprague & Henwood, Inc. has been a leader in the field of Diamond Core Drilling, Soil Sampling, and other types of exploration for the foundations of Bridges, Dams, Large Buildings, Airports, Highways, etc., working in conjunction with many of the country's leading engineers and architects.

Today, we have a large force of expert operators and an ample supply of modern equipment, so that we can undertake practically any job, anywhere, on very short notice. Estimates submitted promptly — quick action when you want it.



On The New York State Thruway

. . . we were privileged to do a considerable amount of the necessary core drilling and soil sampling. Quick action was wanted and we completed our assignments ahead of schedule by using "a large force of expert operators and an ample supply of modern equipment."

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INTERNATIONAL

Canal questions

Europe seeks new links in its waterway system

Important steps to improve inland waterway transportation in Western Europe were foreshadowed recently in Antwerp at a special congress called by the Belgo-German Chamber of Commerce.

The main waterway problem is to provide adequate links for modern 2000-ton Rhine barges between the four main centers of the Schuman plan: Thionville, Luxembourg, Liege and the Ruhr.

Two proposals to improve Belgian communications with the Rhine have been agreed upon by a Belgo-Dutch committee. One—linking the Scheldt with Hollands Deep at Moerdijk by a direct canal from Antwerp across Dutch Brabant—will improve Antwerp's access to seaward traffic from Strasbourg and Basle. The other—opening of the Lanaye bottleneck—will allow big barges to use the Meuse into Holland, giving traffic direct access to Rotterdam and the Rhine through the estuary arm flowing through Nijmegen.

The connection between the Meuse and the Rhine via Nijmegen, however, is considered too round-about as a route between Liege and the Ruhr. So the Dutch suggest a great north canal from Venlo, Holland, to Ruhrort, Germany. Germans—pointing out that this route would leave no effective waterway to serve the Aachen coalfield—purpose a Belgo-German canal from Vise, Belgium, to Neuss, Germany, a plan recently approved by Belgian investigators. Up to now the Vise-Neuss route has been considered unfavorable because it would require expensive locks and barge lifts to deal with different levels.

Canalization of the Moselle River is still urged by the French. The French waterway system—linked to the Rhine-Rhone and Marne-Rhine canals emerging at Strasbourg—has no connection further north serving the Thionville steel industry. Although the Moselle flows along the Luxembourg frontier not far from the iron-ore mines and steel works, it wouldn't cover all of Luxembourg's requirements. It would be necessary to use the Chiers canal to the Meuse River at Sedan—and both the Chiers canal and the Meuse above the frontier at Givet need improvements.

(*Continued on page 52*)

FOR THAT EXTRA MARGIN IN SHOVEL PERFORMANCE...

WARD LEONARD ELECTRIC EXCAVATORS

MORE OUTPUT even under the toughest conditions . . . more loads per shift in any kind of digging . . . extra loads for that EXTRA MARGIN in performance . . . that's what you get from this exclusive combination of shovel front-end features:

1. **TWO-SECTION BOOM** provides maximum strength with minimum weight. The lower section is rigidly connected to the A-frame . . . takes the heavy stresses of the digging cycle in stride because it is part of the main machine.

2. **TUBULAR DIPPER HANDLE** is much lighter than equivalent two-member handle, yet equally strong. Its ability to rotate in the rubber-cushioned saddle block eliminates torsion during the digging stroke, minimizes shock loads.

3. **TWIN DUAL HOIST ROPES** assure a steady, positive digging action with automatic shift of hoist power to that part of the dipper lip where it is needed.

4. **INDEPENDENT ROPE CROWD** is simple, positive and quiet. Shipper shaft pinions and handle racking are eliminated. Crowd machinery is located on main deck rather than on boom — swing inertia is reduced, the operating cycle speeded up.

5. **QUICK CONVERTIBILITY** to dragline of the independent motor type. Hoist and drag functions are powered by separate motors, eliminating operating clutches and brakes. 22L54

These features — plus many more — make Bucyrus-Eries the finest heavy-duty excavators ever built: yard for yard, dollar for dollar, pound for pound. Write today for complete information on the 4½-yd. 110-B, the 6-yd. 150-B, or the 8-yd. 190-B.

Bucyrus-Erie Company

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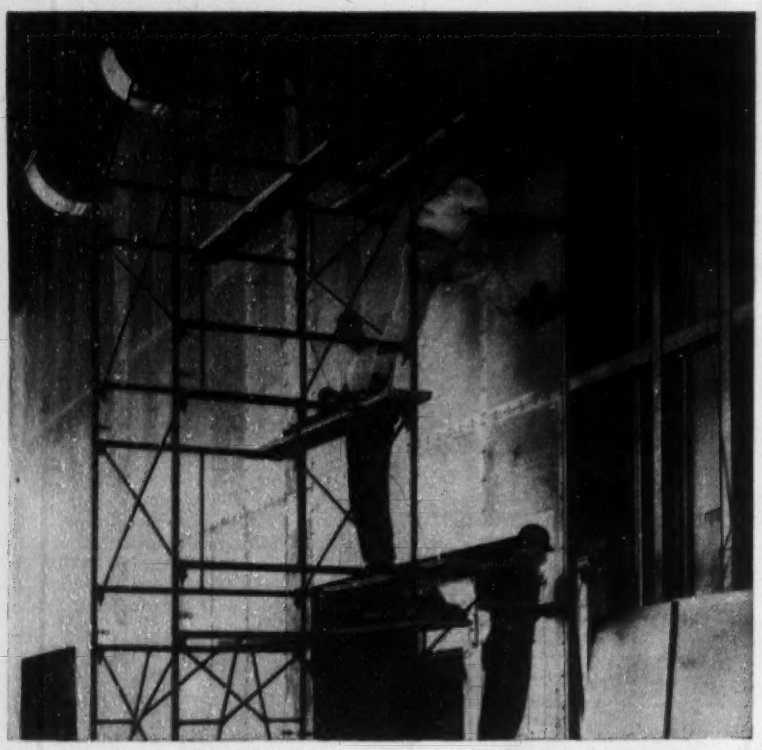

Saves 75% of fastening time by anchoring sheet steel wall with fast, easy Ramset system

About 20,000 individual fastenings were needed to anchor 4′ x 8′ 12-gauge perforated steel sheets to steel beams, to wall the paint hangar at the recently completed airplane plant of North American Aviation Corp., Columbus, Ohio. The wall is required to permit adequate ventilation of 47,250 square feet of space, with a change of air every three minutes from air intakes and exhausts located on opposite sides.

Using RAMSET JOBMASTER fastening tools and Tru-Set drive pins, fastenings were made at a rate better than 50 per hour per man, or 1,200 per day for a three-man crew. This was at least 4 times faster than old-fashioned, conventional methods of drilling and setting studs in the beams. Not only was the work completed far sooner, but a substantial cost-reduction was realized.

Similarly, RAMSET SYSTEM saves money and time on almost any job of fastening to steel or concrete for maintenance, modernization or new construction. Anchoring can be done in split seconds into the hardest concrete, or into mild steel up to 1″ thick, with the proper selection of tools, fasteners and power charges from the versatile RAMSET line.

Ask your RAMSET dealer how you can profitably apply RAMSET SYSTEM to your own work, or write us for details and *Specification Manual*.

Ramset Fasteners, INC. Ramset Division, Olin Industries, Inc.

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FIRST IN POWDER ACTUATED FASTENING

AN Olin PRODUCT

INTERNATIONAL

Belgium already is spending considerable sums to improve the Meuse. When the new Neuville lock is opened next year, the river will take 2,000-ton barges over its whole Belgian course. But France seems reluctant to work on the Meuse, reportedly because it doesn't want Lorraine iron-ore to reach Belgian steelworks at unduly low delivered cost.

Canalization of the Moselle, though mainly of interest to the French, would involve work mostly in Germany. And both the port of Strasbourg and the Federal German Railways object to the Moselle proposal. If Germany remains cool toward the project, France may find it necessary to turn its attention to the Meuse—and this river would then become the main transport axis of the Schuman Plan countries.

Reactor report

AEC study sums up facts on foreign progress in developing atomic power

The proposal to free the atom for peacetime industrial use—one of the Atomic Energy Act amendments passed last week by Congress—has focused attention on foreign progress in nuclear power development.

Part of the foreign story has been reported by the Atomic Energy Commission in its informal study of the broad economic, social and international implications of nuclear power development. The study, made at the request of the Senate-House Atomic Energy Committee, was used as a guide in drafting the bill for atomic law alterations.

The unclassified version of AEC's foreign report deals with 14 friendly countries, viewing their nuclear power progress from the standpoint of fuel supply, basic research, reactor construction and future plans.

Five Western countries—England, Canada, France, Norway and the Netherlands—are listed as operating experimental power-producing reactors.

England, with numerous uranium sources and an ambitious power reactor program on its planning boards, is rated by the AEC as being on par or ahead of the U. S. in basic research.

(In the U. S., private industry reportedly already has a $459-million stake in nuclear energy. By 1963, according to Newton I. Steers, Jr., president of the Atomic Development Mutual Fund, Inc., private investors may sink another $300 million into production of electricity by atomic energy

and $500 million into projects for sterilizing food through radiation.)

Here is the AEC report on those countries that are pushing nuclear power development now or are expected to become active in the future:

England—So far England has built two research reactors, two production reactors and one low-power breeder. A full-scale breeder and another power reactor are under construction.

Canada—With a major source of uranium supply, Canada carried on a considerable program of basic research with the U. S. during war years. Two heavywater research reactors are in operation, a third one is projected, and long-range plans call for construction of a power reactor.

France—Has adequate supplies of nuclear fuel available. Basic research program is substantial. Two heavywater research reactors already have been built, and two fuel-production reactors for a power program are planned.

Netherlands, Norway—Both countries have carried out considerable research and are operating a heavy water reactor.

Belgium—Controls a major uranium source. (Industrial and government interests recently announced that they are well on the way toward making a power-producing nuclear reactor. It is expected to be in operation by 1955.)

Sweden—Has low-grade uranium reserves available. Basic research is advanced. A research type reactor is near the operating date, a sizeable power reactor is planned and a large program is being set up. (Premier Tage Erlander recently announced that Sweden will start its first uranium reactor this summer and is laying plans for two more to be built later. He also reports that his country's uranium deposits are large enough to take care of energy needs for several thousand years.)

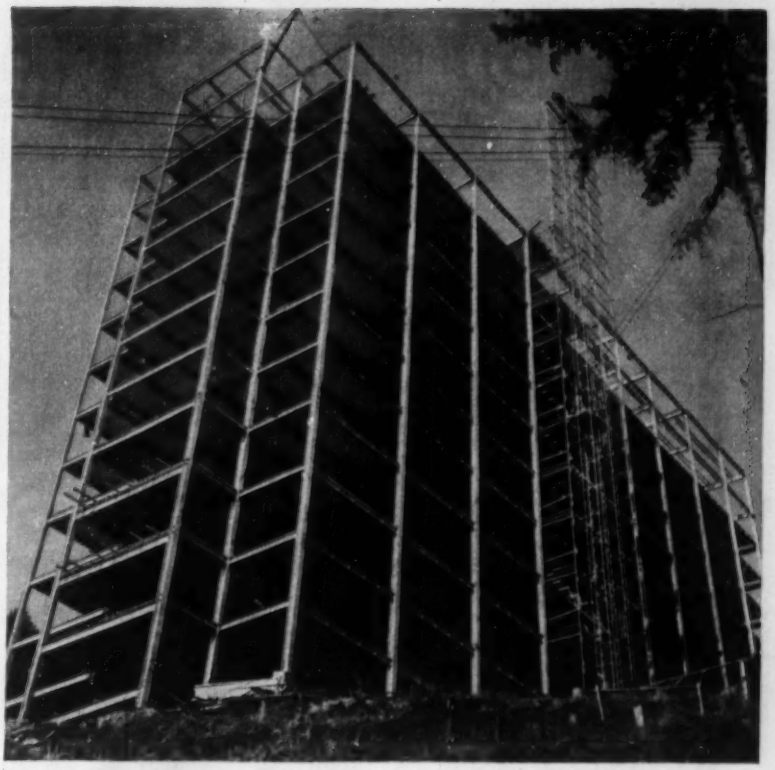
India—Has domestic sources of uranium and deposits of potential thorium ore. Program of basic research is broad and advanced.

Brazil—Substantial deposits of potential thorium ore are available.

Australia—Has discovered large deposits of uranium.

Record cableway for Africa

A British company (British Ropeway Engineering Co.) is considering construction of the largest overhead cable road in the world, running from the interior to the coast of French Equatorial Africa. The road—235 mi long—would be used to transport an estimated 50 million tons of 50% manganese ore from a deposit that is now separated from the coast by a dense tropical jungle.



10 Months Ahead of Schedule

A new building system and modern, high-speed erection equipment have pared 10 months off construction time for an Oregon Hospital.

Perched high on a hillside, the $6 million, 14-story University Hospital at Portland was originally scheduled for completion late in 1955. Pictured above is the building's completed 1,200-ton structural steel framework, and the materials tower which is powered by a highly-efficient American Hoist.

Helping speed the present construction rate is the new "Cofar" building system in which metal decking is welded to the steel frame and covered with lightweight concrete. This is another example of how super-efficient American equipment, combined with modern building techniques, help contractors increase production and keep costs down.

American Hoist products can be the answer to your special problems. Time and money-saving applications of American products are described in factual, on-the-job stories in the American Crosby Clipper. If your business is such that these stories are of interest to you, mail the coupon below. You will receive the Crosby Clipper regularly without charge.

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Yes, I'd like to get the American CROSBY CLIPPER.
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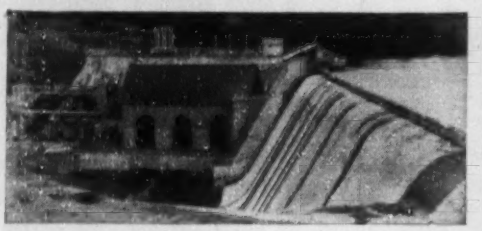
Send coupon today!

CEMENT GUN Co. RESTORES DAM with "GUNITE"



The photographs, at left, show a large Ambursen type dam in Northern New England which has been reintegrated with "GUNITE."

The top photograph shows the spalled and eroded condition of the concrete when the Cement Gun Company crews arrived on the job. The surface was chipped back to sound concrete and reinforcing mesh applied. Then the entire downstream surface was blanketed with "GUNITE."

The bottom photograph shows the completed "GUNITE" surfacing of the dam.

This is typical of many dams which we have restored throughout the country. Many similar examples of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin A2400. A request on your letterhead will bring a free copy by return mail.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES – ALLENTOWN, PA., U. S. A.

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fast dependable service may be the answer to your problem . . .

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OBITUARIES

Leon H. Taylor, 90, engineer for the Carson-Truckee irrigation project in Nevada from 1901 to 1907, died in Los Angeles early in July. From 1913 to 1947 he operated an engineering firm in Reno.

Arthur P. Fulk, 58, president of the Fulk-Needham Construction Co., Pilot Mountain, N. C., died July 14. He was a former director of the safety division of the North Carolina State Motor Vehicles Department and commander of the State Highway Patrol.

George J. Hager, 86, president of E. M. Hager & Sons Co., died July 13 in Buffalo, N. Y. The company, founded by Hager's father in 1868, was contractor for many of the leading buildings in Buffalo.

Walter J. Welch, 77, former chief design engineer for Pioneer Service & Engineering Co., Chicago, died July 13 at El Cajon, Calif. He was associated with Pioneer and its predecessor organizations for 37 years before retirement in 1947.

Charles R. Lindsey, retired vice-president of the Shawinigan Engineering Co., Ltd., died July 12 in Montreal. He was responsible for investigative work on the hydro-electric potential of the St. Maurice River in Quebec. Early in his career—after graduation from Ohio Northern University—he was associated with the Shawinigan Water & Power Co.

W. C. Purdy, 83, pioneer biological investigator in the field of stream pollution for the U. S. Public Health Service, died July 15 in Cincinnati. He joined the federal department in 1913 as an expert in aquatic biology, and was one of the scientists who began work that led to the establishment of The Robert A. Taft Sanitary Engineering Center.

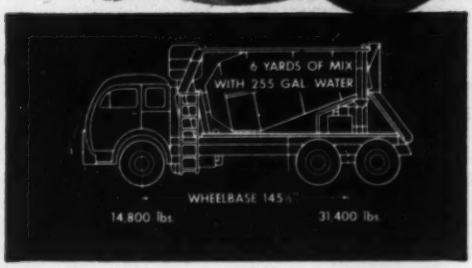
Carl Kohler, 69, a construction engineer who served many years with the Erie Railroad before retirement, died July 13 in Glen Cove, Long Island, N. Y.

John J. Costa, 61, professor of structures and member of the faculty of Manhattan College for 37 years, died July 14 in Riverdale, N. Y. Professor Costa, a 1915 Manhattan graduate, was the author of a number of works on civil engineering. His most recent book, "Structure," was published last year.

NEW PAYLOAD ADVANTAGE

in this

WHITE 3000 SIX-WHEELER



SPECIFICATION BRIEFS ON THIS WHITE 302264

Mixer mounted 15 inches from back of cab. 145½ inch wheelbase. 10.00 x 20, 12-ply lug tires on rear, 11.00 x 20 four-ply wire-cord on front. Mustang Engine, 14 inch clutch, 507-B transmission, White 87-C tandem axle with 6.83 to 1 ratio. 12-volt battery system, Aeromatic power steering. Mixer starter motor mounted at rear driven from battery.

TOMORROW'S TRUCK TODAY in mixer service is this White 3000 Six-Wheeler that brings new earning power . . . new efficiency and economy to the ready-mix industry.

Drivers have glowing reports of the great job this White 3000 is doing everywhere. This six-wheeler with 5½-yard mixer is hauling 6 yards of mix, 175 gallons of water in mixing drum and 80 gallons of water in flush tank. It is an amazing story of correct application for more payload profits!

Get facts from your White Representative without delay.

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For More Than 50 Years

The Greatest Name In Trucks

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., West Springfield** — SCHOOL — BA 8/19 — Town, School Dpt., high school, Piper Rd., $2,900,000. Warren H. Ashley, 967 Farmington Ave., West Hartford, Conn., archt. Paul B. Johnson, 66 Vernon St., Springfield, assoc. archt. Marchant & Minges, 967 Farmington Ave., West Hartford, Conn., engrs. CD 9/25.

SOON LETS CONTRACT—BUILDINGS

▲ **Me., Portland**—MEDICAL CENTER—Trustees of Maine Eye & Ear Infirmary, Maine General Hospital, Children's Hospital, 79 Bramhall St., soon lets contract medical center, Arsenal St. $4,000,000. Extended date. Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., archts. CD 7/13

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—Maine Turnpike Auth., 17 Bishop St., Portland, **W. H. Hinman, Inc.**, North Anson, Me. LB **$999,388**, est. $1,000,000. Alt. B Contr. 217, bridges, Lewiston and Webster. Bids July 22. CD 7/6.

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

The Savin Constr. Corp., 10 Village St., East Hartford, Conn. LB **$2,643,550**, est. $2,600,000. Contr. 222; **W. H. Hinman, Inc.**, North Anson, Me. LB **$1,479,851**, est. $1,500,000. Contr. 222A;

Warren Bros. Roads Co., 33 Cambridge Parkway, Cambridge, Mass. LB **$1,311,092**, est. $1,350,000. paving Auburn, Litchfield and Augusta. Bids July 22. CD 7/6.

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

Lane Constr. Corp., 965 E. Main St., Meriden, Conn. CA **$4,178,388**, est. $4,200,000. Contr. 221, Sect. 2 paving, Scarboro, Falmouth, Auburn. CD 7/20, under LB.

▲ **NEW HAMPSHIRE**—State, Dpt. P. Wks. & Hys., Concord,

Manchester Sand, Gravel & Cement Co., Inc., P.O. Box 536, Manchester, N. H. LB **$1,095,000.** road mix 2.308 mi. 4 lanes, F. E. Everett Hy. (toll), Bedford-Manchester. Bids July 22. CD 7/14.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Frank J. Shields, Inc., 91 Central St., Southbridge, Mass. LB **$341,023**, est. $315,000. reconstr. Rte. No. 9 and exten. bridge over Seven Mile River East Brookfield and Spencer;

Stephen C. Puffer Jr., 64 Montague Rd., North Amherst, Mass. LB **$69,840**, est. $63,000. hy. reconstr. Mohawk Trail, Greenfield and Shelburne;

Tremont Constr. Co., 101 Tremont St., Boston, Mass. LB **$76,615**, est. $90,000. hy. work Newton Rd., Haverhill;

Daniel O'Onfro's Sons, 712 Main St., Leominster, Mass. LB **$226,399**, est. $210,000. hy. reconstr. S99 (1), Lunenburg;

Suburban Excavators, Inc., 104 Elm St., Wakefield, Mass. LB **$105,489**, est. $99,000. reconstr. sect. hy., Main St., S 97 (1), Saugus. Bids July 20. CD 7/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **George B. H. Macomber Co.**, 19 Milk St., Boston, Mass. CA Est. **$1,125,000.** COLLEGE bldgs., Prince Estate, BEVERLY, MASS. Gordon College of Theology & Missions, 30 Evans Way, Beverly, Mass. Bids May 3. CD 4/27.

Beaudry Constr. Co., 142 Hancock St., Springfield, Mass. CA **$590,000.** Birchland Park SCHOOL, EAST LONGMEADOW, MASS. Town, Hanwrad Hill, East Longmeadow, Mass. CD 7/21, under LB.

Tocci Bros. Constr. Co., 38 Colonial Ave., Newtonville, Mass. CA **$642,000.** Maria Hastings Elementary SCHOOL, Mass. Ave. and School St., LEXINGTON, MASS. Town, 1475 Mass. Ave., Lexington, Mass. CD 7/20, under LB.

Moloney & Rubien Constr. Co., 66 Wickendon St., Providence, R .I. CA **$818,928.** Adolph Meyer BUILDING addn., State Hospital, HOWARD, R. I. State, Providence Plants, F. A. Adams, purch. agt., State House, Providence, R. I. CD 7/13, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Del., Dover**—FENCING, etc.—BA On Or About 8/20—U. S. Eng., 2635 Abbottsford Ave., P. O. Box 8629, Phila. 1, Pa., security fencing and lighting sys., Dover Air Force Base, ENG-36-109-55-4, $500,000. Whiteside, Foster, Damon, Doane, Inc., Penna. R. R. Bldg., Wilmington, engr. and archt. CD 7/13.

NEW JERSEY—BA 8/24—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Contract N-8, substructure, etc. for Newark Viaduct in City of Newark, Essex Co., all in connection with constr. of Newark Bay-Hudson County Extension of New Jersey Turnpike. Plans deposit $15. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y., consult. engrs. CD 8/20/53, under Streets and Roads.

† **Del., Dover**—SHOP, etc.—BA 8/26—U. S. Eng., 2635 Abbottsford Ave., P. O. Box 8629, Phila. 1, Pa., automotive maintenance shop and admin. bldg., Dover Air Force Base, ENG-36-109-55-7, $500,000. Whiteside, Foster, Damon & Doane, Inc., Penna. R. R. Bldg., Wilmington, archt. Extended date. CD 7/19.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Harrisburg**—TEMPLE—Masonic Temple, 3 and State Sts., soon lets contract, temple for Scottish Rite Consistory, Masonic Order, Third and Wiscinsco Sts. $1,000,000. Plans deposit $100. Wm. L. Murray & Assocs., 1600 N. 2 St., archts.

▲ **Pa., South Greensburg**—**Pittsburgh Plate Glass Co.**, Gateway Center, Pittsburgh, soon lets contract 1 story, 120x300 ft., brick, steel, auto glass mfg. plant addn. $3,600,000. CD 7/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith, State Office Bldg., Albany,

Howard & Sprague, Inc., 656 State St., Binghamton, N. Y. LB **$594,568**, est. $750,000. five span 530 ft. bridge, approaches, to carry proposed South Union St. urban arterial route (Rte. 16A) over Allegheny River in Olean, Cattaraugus Co.;

Thomas P. Spagnoletti Constr. Co., Inc., 14 Denton Rd., Binghamton, N. Y. LB **$193,889**, est. $249,000. reconstr. 2 bridges and culvert on secondary road running from Bovina Center southwestward to Route 28, 8 mi. southeast of Delhi, Delaware Co. Bids July 22. CD 6/29, under Streets and Roads.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith, State Office Bldg., Albany,

Arute Bros., Inc., 560 S. Main St., New Britain, Conn. LB **$1,666,732**, est. $1,990,000 relocating 6 mi. sect. of Rte. 365, starting about 2 mi. northeast of Verona Station, exten. northeastward to point near Rome State School, Oneida Co.;

Serafini Constr. Co., Inc., Conklin Rd., Binghamton, N. Y. LB **$988,800**, est. $1,033,000. grading 3.93 mi. access roads to Long Pond Rd. and Dewey Ave. traffic interchanges on Lake Ontario State Parkway, incl. 2 structures to carry parkway over Larkin Creek, 1 structure to carry Parkway over Round Pond Creek, Monroe Co.;

Thomas P. Spagnoletti Constr. Co., Inc., 14 Denton Rd., Binghamton, N. Y. LB **$184,712**, est. $220,000. 22 ft. b. conc. pavement on 0.85 mi. sect. of Rte. 20A west of Varysburg, Wyoming Co.;

S. A. Scullen Co., 6 Second St., Waterford, N. Y. LB **$645,836**, est. $750,000. reconstr., imprv. 2.99 mi. portion of Rte. 32 in and near Quarryville in northeastern part of county, concrete bridge over Beaver Kill, Ulster Co. Bids July 22. CD 6/29.

▲ **NEW YORK**—New York State Bridge Auth., 22 Ferry St., Kingston,

Harris Structural Steel Co., 419 Fourth Ave., New York 10, N. Y., LB **$9,496,431**, Contr. No. 2, superstructure of Kingston-Rhinecliff Bridge over Hudson River, incl. 2,563 lin. ft. approaches having deck plate girder spans varying from 87 to 150 ft. long; 5,200 lin. ft. truss spans over the river, incl. two simple truss spans 298.5 ft., two three-span continuous truss (498 ft., 800 ft., 498 ft.) over two river channels and one two-span continuous truss with 498 ft. spans, Ulster and Dutchess Counties. Bids July 26. CD 6/21.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

New Enterprise Stone & Lime Co. Inc., New Enterprise, Pa., CA, **$685,111**, c. conc. 3.27 mi. on each side of concrete divisor and 4 rein.-con. bridges over Blair Gap Run, Branch of Blair Gap Run, Gillens Run and Spencer Run, from Duncansville north, T.R. 36 and U.S. 220, Allegheny and Blair Twps., Duncansville Boro, Blair Co.;

Central Pennsylvania Quarry, Stripping & Constr. Co., P.O. Box 378, Hazleton, Pa., CA, **$5,883,748** 2.72 mi. divided hy. with crushed aggreg. base and bit. surf., one I-beam overhead for interchange and four plate girder bridges, one over Susquehanna River, 2 over D.L. & W. R.R. and one over Ramp G of Interchange, southeast of Plymouth, U.S. 11 in Hanover and Plymouth Twps., Luzerne Co. Bids July 9. CD 7/13, under LB.

▲† **Montgomery Constr. Co.**, Clifton Heights, Pa. LB **$1,424,525.** Defense Facility, No. 36-109-54-422, Chester and Montgomery Counties, PENNSYLVANIA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids July 14. CD 7/7.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

F. P. Asher Jr. & Sons, Inc., 1715 West Ext., Annapolis, Md. LB **$810,774.** grading, draining, surf. 4.84 mi. North-South Route, near Carville, Contr. Q-168-38-220, Queen Anne Co. Bids July 20. CD 7/19.

BUILDINGS

LOW BIDS AND CONTRACTS

Larry Popkin, 319 High St., Burlington, N. J., Separate Contracts, **$500,000**, RESIDENTIAL DEVELOPMENT, off Route 130, BURLINGTON, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ **Shar-Lane Gardens, Inc.**, 469 S. 2 St., Millville, N. J., Separate Contracts, **$4,000,000**, RESIDENTIAL DEVELOPMENT, Whitehall Ave., MILLVILLE, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ **McManus Bros., Inc.**, 4610 State Rd., Drexel Hill, Pa. Separate Contracts. **$3,000,000.** 191 RESIDENTIAL DEVELOPMENT, Aston Twp.-Concord Rd., CHESTER, PA.

Wallace Engineering & Constr. Co., Bryn Mawr, Pa. CA, **$867,500.** Junior High SCHOOL, Janney, LANGHORNE, PA. Neshaminy Joint School Bd., Langhorne, Pa. CD 6/24, under LB.

▲ **D. D. Davis Constr. Co.**, 5234 Glenwood Ave., Youngstown, O., CA, **$2,000,000**, SHOPPING CENTER, to be known as Hilltop Plaza, on Route 18, NEW CASTLE, PA. Sidney Wagner & Assocs., c/o Boardman Transit Co., Boardman, O.,

L. F. Driscoll Co., 18 W. Chelten Ave., Phila., Pa., LB. **$530,000**, general contract remodeling FEMALE BLDGS. C-1 and C-5, Philadelphia (Byberry) State Hospital, PHILADELPHIA, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids July 21. CD 6/17.

Franklin Constr. Co., 1325 Walnut St., Phila., Pa. CA, **$500,000.** APARTMENT, PHILA., PA. Franklin Park Inc., Washington Lane and Chew Ave., Phila., Pa. Knopf & O'Shiver, 1704 Walnut St., Phila., Pa., archts.

Sidney Elkman, Wilford Bldg., Phila., Pa. CA **$643,200.** SUPERMARKET roadways, parking area, Belmont Ave. and city line, PHILA., PA. Penn Fruit Co., 1919 Chestnut St., Phila., Pa. Bids July 8. CD 7/2.

▲ **Melwin Constr. Co.**, 117 N. 10 St., Phila., Pa. Separate Contracts. **$2,400,000.** RESIDENTIAL DEVELOPMENT, Stoney Hill Creek, PROSPECT PARK, PA.

Sun Development Co. of America, 6373 Germantown Ave., Phila., Pa. Separate Contracts. **$720,000**, RESIDEN

(Continued on page 58)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

3 mighty Manitowoc 3000's

lick 500,000 yards of rock for DINARDO, INC.

Once again, Manitowocs are chosen to handle a rough, tough rock job. Approximately 700,000 yards of rock and shale are included in Dan Dinardo's contract on the reconstruction of State Route 88 near Sewickley, Pa. Three big Manitowoc 2½ yd. shovels were selected to handle the toughest 500,000-yard section on the job.

Dinardo depends on the Manitowocs to whip the meanest stretches and slug out the biggest part of the job — and yet, there is less down time with the Manitowoc's than any other shovel on the project. That's the big advantage of having Manitowoc's rugged construction, fast working speeds and tremendous power at the dipper, working for you.

Do what Dan Dinardo does—and what contractors all over the nation are doing—put a Manitowoc on *your* job and protect your margin of profit.

MANITOWOC

SHOVELS 1-5 YD. Speedcrane CRANES 18-100 TON

(Continued from page 56)

TIAL DEVELOPMENT, County Line, TELFORD, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

E. T. Bowden, Inc., 409 Shadeland Ave., Drexel Hill Pa. Separate Contracts. $750,000. RESIDENTIAL DEVELOPMENT, Thornbury Twp., THORTON, PA. Leopold Hauf, Jr., 101 Walsh Rd., Lansdowne, Pa., archt.

▲ **J. Wayne Orilip**, 1011 Pontiac Rd., Drexel Hill, Pa. Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, Alexander Ave., UPPER DARBY, PA.

Williams & James, Inc., 2227 E. Darby Rd., Havertown, Pa. CA $900,000. RESIDENTIAL DEVELOPMENT, Hilltop Rd., WESTTOWN, PA. Owner, c/o Fielding & Pomeroy, Springfield, Pa.

Hendry Constr. Co., 313 Central Ave., Brack-Ex, Wilmington, Del., Separate Contracts. $800,000, RESIDENTIAL DEVELOPMENT, Klair Estates, MARSHALLTON, DEL.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del., LB $597,869, Brookside Elementary SCHOOL, NEWARK, DEL. Bd. Educ., Newark, Del. E. William Martin, 830 West St., Wilmington, Del., archt. CD 8/21.

SOUTH

BIDS ASKED—BUILDINGS

Fla., Gainesville—PLANT—BA 8/16—Sperry Corp., 30 Rockefeller Plaza, New York, N. Y., mfg. plant and utilities. $600,000. Ebaugh & Goethe, 700 S.E. 3 St., engr. CD 9/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Sq., Atlanta,
Scott Constr. Co., Thomasville, Ga., CA, $411,582, 6 bridges, BA (2) and 905 (9), Echols and Clinch Counties;
Americus Eng. & Constr. Co., Americus, Ga., CA, $63,909, 2 bridges BA (2) and 951 (1), Marion Co.;
Rutland Contg. Co., Decatur, Ga., CA, $144,008, 2 bridges, Webster and Sumter Counties;
Leo T. Barber, Moultrie, Ga., CA, $137,500, 2 bridges BA (2) and 1219 (6), Clinch and Echols Counties;
CA $126,000 bridge BA (2) and 1826-A, Stewart Co.;
B. P. Lamb, Statesboro, Ga., CA, $119,490, 2 bridges, BA (2) and 1593-A (2), Lee Co.;
Cornell-Young Co., Macon, Ga., CA, $505,395, 5 bridges BA (2) and 1629 (5), Contract 2, Houston and Twiggs Counties;
H. G. Smith, Fitzgerald, Ga., CA, $126,416, 2 bridges, BA (2) and 1856 (5), Ben Hill and Wilcox Counties. Grand total $1,634,210. Bids June 30.

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Square, Atlanta,
Hugh Steele Constr. Co., Centre, Ala., CA, $258,198. grading, paving 1629 (5), Contract 1, Houston and Twiggs Counties;
Georgia-Alabma Paving, Brookhaven Rd., Columbus, Ga., CA, $643,826, wid'n., resurf. F-001 and SAP-1036 (5), Crawford and Peach Counties;
Cornell-Young Co., Macon, Ga., CA, $424,274, grading, paving F 002-4 (2), Bibb Co.;
Asphalt Constr. Co., Wadley, Ga., CA, $573,997, asph. FI-004-3 (5); CA, $383,509, asph. U-015 (3), Richmond Co.;
C. M. Lyle Constr. Co., Gainesville, Ga., CA, $555,272, reconstr., resurf. roads F-05502, Rabun Co.;
Trussell Constr. Co., Brennan Rd., Columbus, Ga., CA, $260,311, grading, paving F 089-1 (5), Baldwin Co.;
Ed Smith & Sons, Inc., North Ave., Atlanta, Ga., CA, $289,473, grading UI-536 (6), Fulton Co.;
Coffee Constr. Co., Eastman, Ga., CA, $166,487, grading, paving S0643 (1), Terrell and Webster Counties;
D. W. Bailey, Jackson, Ga., CA, $274,291, grading, paving S 0684 (1), Twiggs and Wilkinson Counties;
Lothridge Brothers, Gainesville, Ga., CA, $259,968, grading, paving S-1019 (2), Cherokee Co.;
Sowega Farm Mchry. Co., Edison, Ga., CA, $173,154, grading, paving, S 1187 (1), Calhoun Co.; CA, $127,773, grading, paving S 1662 (1), Randolph Co.;
Oliver Greene & Son, Gray, Ga., CA, $108,659, grading, paving S 1298 (2), Peach and Houston Counties;
Holliday Constr. Co., Greenville, Ga., CA, $121,836, grading, paving, S 1520 (2), Randolph and Stewart Counties;
E. F. Groover, Moultrie, Ga., CA, $137,916, grading, paving S 1660 (1), Schley and Macon Counties;
W. L. Robinson Constr. Co., College Park, Ga., CA, $177,222, grading, paving, S 0772 (2), Monroe Co. Grand total $4,936,166. Bids June 30.

▲ **Richards & Assocs., Inc.**, P.O. Box 88, Carrollton, Ga., CA, $1,386,439, Contract No. 1, natural gas sys., CRESTVIEW, FLA. City, Crestview, Fla. Bids July 6. CD 7/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Heller Murray Co., 347 Newton St., Youngstown, O., CA, $800,000, 2 story, 65x150x265 ft., L-shaped brick, steel, HIGH SCHOOL, WEIRTON, W. VA. Catholic Central High School, Weirton, W. Va. Bids July 1. CD 6/17.

Jordan Contg. Co., Andrews Rd., Columbus, Ga., LB, $582,000, OFFICE and BANK, COLUMBUS, GA. Fourth National Bank, Murrah Bldg., Columbus, Ga. CD 12/17.

▲ **Stone & Webster Eng. Corp.**, 49 Federal St., Boston, Mass., CA, $6,000,000. design and construct, 30,000 kw. Riverside GENERATING STATION addn., SAVANNAH, GA. Savannah Electric & Power Co., 27 West Bay St., Savannah, Ga.

W. M. Crawford, 306 Brown Ave., Columbus, Ga., LB, $584,845, elementary and high SCHOOLS, SOPERTON, GA. Truetlen Co. Bd. Educ., Soperton, Ga. Bids July 7. CD 6/10.

S. J. Curry & Co., Oglethorpe and Poplar Sts., Albany, Ga., LB, $677,300, 1953 CLASSROOM bldg., Florida State University, TALLAHASSEE, FLA. State Bd. Control, Education Bldg., Florida State University, Tallahassee, Fla. Bids July 13. CD 7/1.

Bear Constr. Co., P.O. Box 694, Tallahassee, Fla., CA, $879,600, men's GYMNASIUM, Florida State University, TALLAHASSEE, FLA. State Bd. Control, Education Bldg., Tallahassee, Fla. Bids June 15. CD 7/14, under LB.

Hall & Cox Constr. Co., 2162 N. Foster Dr., Baton Rouge, La. CA, $538,522. Glascow SCHOOL plant, BATON ROUGE, LA. East Baton Rouge Parish School Bd., Baton Rouge, La. CD 7/7, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Tiffin—BA 8/18—City, Robt. L. Booth, mayor, Incepting sewerage sys. $800,000. Plans deposit $10. Jones, Henry & Williams, Security Bldg., Toledo, engrs. CD 11/11/52.

SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—WAREHOUSE, etc.—Joseph H. Schlitz Brewing Co., 235 W. Galena St., Milwaukee, Wis., soon lets contract 60,000 sq. ft., in three units, warehouse and office, 6645 Ridge Ave. $600,000. H. A. Kuehl, 337 W. Madison St., engr. Breimeyer, Grellinger & Rose, 757 N. Broadway, Milwaukee, Wis., archts.

Ill., Glen Ellyn—CHURCH, etc.—St. Petronille Catholic Church, 420 Glenwood St., soon lets contract church, school and convent, $550,000. Jensen & Halstead, 228 N. La Salle St., Chicago, Zone 1, archts.

▲ **Ind., Indianapolis**—HOSPITAL—Hospital Development Assn., Inc., Indianapolis Athletic Club, Indianapolis, Zone 4, soon lets contract 5 story, bsmnt., irregular, brick, stone, rein.-con., steel community hospital, 16 St. and Ritter Ave. $5,000,000. Daggett, Naegele & Daggett, 1537 Central Ave., archts. CD 8/4/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **H. L. Gentry Constr. Co.**, Jackson, Mich. CA Est. $1,640,000. 35 mi. 20 in. transmission line between Hooker and Johnstown, Fairfield Co.;
Ohio Pipeline Constr. Co., Granville, O. CA Est. $60,000. 2⅛ mi. 6 in. pipe line near Westerville, Franklin Co.;
Shamrock Constr. Co., 2300 S. Ollie St., Oklahoma City, Okla. CA Est. $170,800. 8 mi. 8⅝ in. gas transmission line for Marysville, Pharisburg and Magnetic Springs, Union Co.; CA est. $85,000, 1½ mi. 20 in. feeder line along Mound St. replacing present 10 in. line, Columbus, Franklin Co., OHIO. Ohio Fuel Gas Co., 99 N. Front St., Columbus, O. Grand total $1,955,800. CD 7/22.

▲ **OHIO**—State Hy. Dpt., Columbus,
Fischer Constr. Co., 4053 Clifton Ave., Cincinnati, O. LB $2,092,125, est. $2,454,800. Type T-35 and

For dependable power transmission, Barber-Greene uses BLOOD BROTHERS UNIVERSAL JOINTS

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ROCKWELL SPRING AND AXLE COMPANY
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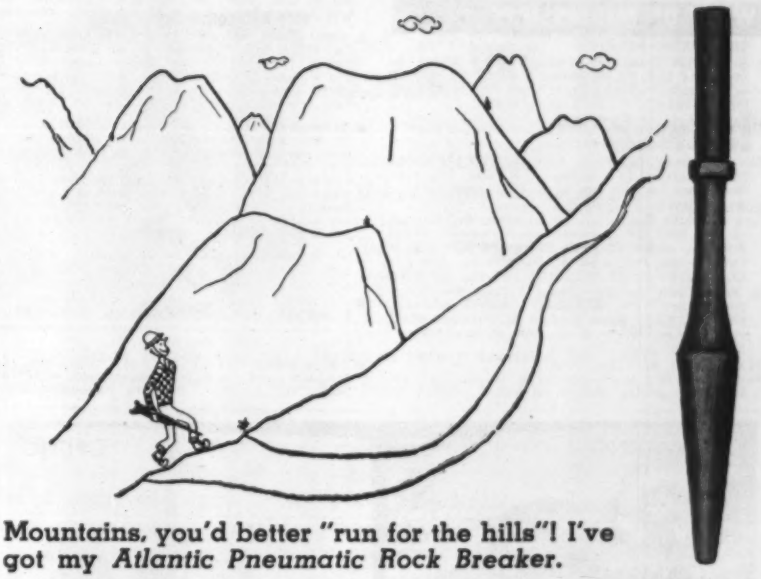
UNIVERSAL JOINTS AND DRIVE LINE ASSEMBLIES

T-71 and structures 12.266 mi. US 23 (0.00-5.37) 17.66 F-460 (5), F 306 (5), (village of South Bloomfield), Franklin and Pickway Counties;
Northeastern Road Imprvt. Co., Willoughby, O. LB **$78,301**, est. $82,700. Type T-34 3.854 mi. CR No. 202 S 276 (4), Lake Co.;
Ohio Eng. Co., 105 Sixth St., Lorain, O. LB **$179,162**, est. $174,500. Type T-35 2.06 mi. SR 58-4.44, F 616 (4), Lorain Co.;
DeBolt Constr. Co., Inc., Box 208, Richmond, Ind. LB **$69,776**, est. $71,000. Type T-35 0.308 mi. SR 503 (12.70) (13.80) S 144 (4), Preble Co.;
Oyler Brothers, Inc., 1324 Second St., S.W., Canton, O. LB **$210,830**, est. $236,850. Type T-35 and structure 0.831 mi. USR-62 (7.70-8.41), F 528 (5), Stark Co.; LB **$64,609**, est. $56,800. Type T-35 SR 241 (8.83-10.42), Stark Co.;
Glenn Rhoades Constr. Co., Mount Orab, O. LB **$74,581**, est. $85,550. Type T-35 0.363 mi., SR 222-28.50, 29.53, Clermont Co.;
Fuller-Davies Co., 1111 W. Court St., Cincinnati, O. LB **$108,206**, est. $125,800. Type T-35 4.221 mi. USR 36-11.06, USR 127-12-12 (13.49-14.04), (14.05-15.54), Darke Co.; LB **$93,576**, est. $86,800. Type T-35 1.689 mi. SR 0-(10.81-11.55), Hamilton Co.; LB **$108,979**, est. $117,900. Type T-35 4.506 mi. USR 33-(6.19-10.60), Logan Co.;
Shelly & Sands, Inc., Thornville, O. LB **$507,649**, est. $574,700. Type T-35 and structure 7.731 mi. USR 40-24. 90 (0.00), Franklin and Licking Counties;
Clyde L. Moore & Clyde L. Moore, Inc., R.F.D. No. 1, Lowellville, O. LB **$77,963**, est. $118,500. Type T-35 and structure 0.241 mi. USR 422-18.98, Geauga Co.;
DeSalvo Constr. Co., 1586 Summit Rd., Cincinnati, O. LB **$116,750**, est. $128,500. Type T-71 0.303 mi. SR 561-6-44, Hamilton Co.;
Bruns Coal Co., Inc., Lind Arcade Bldg., Zanesville, O. LB **$272,541**, est. $271,700. Type-35 1.991 mi. USR 22-(7.26-7.75) (8.42-9.45), Jefferson Co.;
Ohio Road Imprvt. Co., 30 E. Broad St., Columbus, O. LB **$135,927**, est. $135,200. Type T-35 3.312 mi. SR 153-0(000-2.09) Stark Co.;
Jones Asphalt Paving Co., Route No. 1, Wooster, O. LB, **$171,479**, est. $197,440. Type-T 35, 6.691 mi. U.S. 250 (11.80-18.27), Wayne Co. Bids July 20. cancelled bids to have been opened July 20, Type T-35 T-33 2.043 mi. CR No. 299, S 401 (4), Portage Co. CD 7/1.
▲ **Bates & Rogers Constr. Corp.**, 600 W. Jackson Blvd., Chicago, Ill., LB, **$2,989,155**, excavating, grading, and concrete work, etc.;
John F. Beasley Constr. Co., 20 N. Wacker Dr., Chicago, Ill., LB, **$252,806**, erection and field painting of permanent structural steel;
Ingalls Iron Works Co., Verona, Pa., LB, **$1,155,009**, furnishing, shop painting, del. permanent structural steel for track elevation of Nickel Plate Railroad, FORT WAYNE, IND. City Bd. P. Wks., City Hall, and Nickel Plate R.R. District, P. McKay, div. engr., Calhoun and N. P. tracks, Fort Wayne, Ind. Bids July 9. CD 6/7.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Steelcraft Mfg. Co.**, Rossmoyne, O. CA **$661,234**. steel framing, insulated panels for pipe housings;
Bloomer Heating & Ventilating Co., 1237 W. 47 St., Chicago, Ill. CA **$66,425**. furnishing, supply instrument tube ducts and cabinets for process bldg.;
Cyclone Fence Div., American Steel & Wire Co., U. S. Steel Corp., Union Trade Bldg., Cincinnati, O. CA **$88,293**. furnish, erect fencing for PROCESS BLDG. (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., PIKETON AND WAKEFIELD, O. Grand total $815,952. CD 8/13/52, under CA.
▲ **DeWitt Constr. Co.**, Second National Bldg., Akron, O. Owner Builds. **$5,000,000**. approx. 200 HOUSES in 60 acre Garman Rd. area known as Kenilworth Manor, AKRON, O.
▲ **Welso Constr. Co.**, 2434 W. Fletcher St., Chicago, Ill., CA, **$2,000,000**, 96-unit APARTMENT, 5801 Sheridan Rd., CHICAGO, ILL. Harbour View Apartment Corp., 225 N. Michigan Ave., Chicago 1, Ill. Erwin G. Fredrick, 225 N. Michigan Ave., Chicago 1, Ill., archts. Awarded July 6.
Cecka & Flavell, Westmont, Ill., Own Forces, **$625,000** 40 HOMES, DOWNERS GROVE, ILL.
▲ **Owner**, c/o Frank Lapasso, archt, 8 S. Dearborn St., Chicago 3, Ill., Own Forces, **$4,000,000**, 135 HOMES, GLENCOE, ILL.
Hutter Constr. Co., 134 Western Ave., Fond du Lac, Wis., CA, **$811,875**, general contract 4 story HOSPITAL addn., PORTAGE, WIS. Divine Savior Hospital, Portage, Wis. Bids June 24, CD 7/9, under LB.
H. Schmitt & Sons Co., 930 E. Burleigh St., Milwaukee 12, Wis., CA, **$750,000**, CHURCH, WHITFISH BAY, WIS. St. Monica Catholic Congregation, 134 W. Silver Spring Dr., Milwaukee, Zone 11, Wis. CD 6/17.
Darin & Armstrong, Inc., 2041 Fenkell St., Detroit 38, Mich. CA Est. **$600,000**. brick, stone CHURCH, Harmon Ave., BIRMINGHAM, MICH. Holy Name R.C. Parish, Eugene Paddock, pastor, 555 Woodland St., Birmingham, Mich. Bids June 8. CD 6/3.
▲ **Hoischer & Rape**, Ohio Ave., Silverton, O. Owner Builds. **$1,652,500**. 95 bsmnt., brick HOMES, off Matson Ave., DEER PARK, MICH. Nunlist & Frolicher, Traction Bldg., Cincinnati, O., engrs. Awarded July 20.
▲† **H. F. Campbell Constr. Co.**, 9301 Michigan Ave., Detroit 10, Mich. CA **$1,567,800**. machinery storage WAREHOUSE, utilities, access roads, GRAND BLANC, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit 26, Mich. Bids June 18. CD 5/26.



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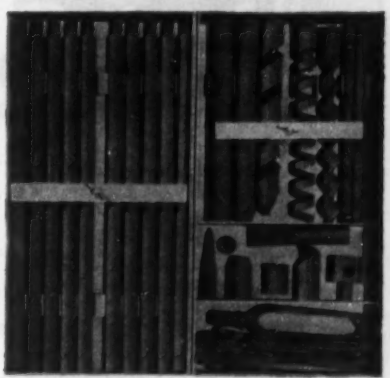

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WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

† **N. M., Las Cruces**—WAREHOUSE—BA 8/17—U. S. Eng., Box 1538, Albuquerque, 5 warehouses, 14,000 sq. ft. each, masonry, White Sands Proving Grounds, ENG 29-005-55-14. $950,000. CD 7/2

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Carrothers Constr. Co., Paola, Kan., CA, **$927,172** sewage plant expansion, DES MOINES, IA. City, City Hall, Des Moines, Ia. Bids June 3. CD 6/21, under LB.

NORTH DAKOTA—State Hy. Dpt., Bismarck,
John F. Beasley Constr. Co., 20 N. Wacker Dr., Chicago, Ill. LB **$867,137.** superstructure Yellowstone Bridge 0.364 mi. on SH 23 across Yellowstone River east of East Fairview, Proj. S 58 (4), McKenzie Co. Bids July 23. CD 7/7.

▲ **Peter Kiewit Sons Co.,** Omaha, National Bank Bldg., Omaha, Neb. LB, **$1,378,717.** airfield pavement, WICHITA, KAN. Boeing Airplane Co., Personnel Bldg., Wichita, Kan. Wilson & Co., 223 N. Santa Fe St., Salina, Kan., engrs. Bids July 9.

TEXAS—State Hy. Comn., Austin,
Austin Road Co., P. O. Box 1590, Dallas, Tex., CA, **$703,260.** grading sections, structures, roadbed tr. and c. conc. 6.349 mi. Hy. U.S. 77, Denton Co. Bids July 13, awarded July 21. CD 7/19, under LB.

▲ **Fisher Constr. Co.,** 2201 S. 19 St., Phoenix, Ariz., CA, **$2,247,672,** Montgomery Dam, 1,850 ft. long, 108 ft. high rock fill dam, with concrete spillway, 100 ft. long bridge sand outlet conduit with required control valve, COLORADO SPRINGS, COLO. City, City Hall, Colorado Springs, Colo. Bids July 12. CD 7/21.

▲ **Millstone Constr. Co., Inc.,** 8510 Eager Rd., St. Louis 24, Mo. CA Est. **$1,500,000.** 11 story, bsmnt., brick, steel, rein.-con. medical OFFICE, on 182x236 ft. site, West Pine Blvd. and Euclid Ave., ST. LOUIS, MO. Pine-West Corp., Joseph A. Campagna, pres., 18 S. Kingshighway, St. Louis 8, Mo. Wells & Wells, Inc., Security Bldg., St. Louis 2, Mo., archt., Paul Valenti, c/o Washington University, Forsyth and Skinker Blvd., St. Louis 5, Mo., assoc. archt.

C. H. Smithwick, 1606 W. 24 St., Pinebluff, Ark., CA, **$500,000** 68 unit MOTEL, Hy. 65, PINE BLUFF, ARK. Wallace Johnson, 875 Rayner St., Memphis, Tenn.

▲ **Ed. Cohen,** Mayo Bldg., Tulsa, Okla. Owner Builds. $1,000,000. 100 HOMES, Wekiwa Rd. at SAND SPRINGS, OKLA. Donald McCormick, Tri State Bldg., Tulsa, Okla., archt. Awarded July 21.

W. R. Grimshaw Co., Ko Me Bldg., Tulsa, Okla. CA **$610,000,** est. $600,000. Osteopathic HOSPITAL addn., TULSA, OKLA. Oklahoma Osteopathic Assn., 744 W. 9 St., Tulsa, Okla. Bids July 9, awarded July 14. CD 7/8.

▲ **Dallas Power & Light Co.,** Dallas Power & Light Bldg., Dallas, Tex. Own Forces. **$586,000,** SUBSTATION near Singleton St. in West Dallas; CD 2/12; **$658,000,** new transformer electric SUB-STATION, near Lakeland, DALLAS, TEX. CD 2/10.

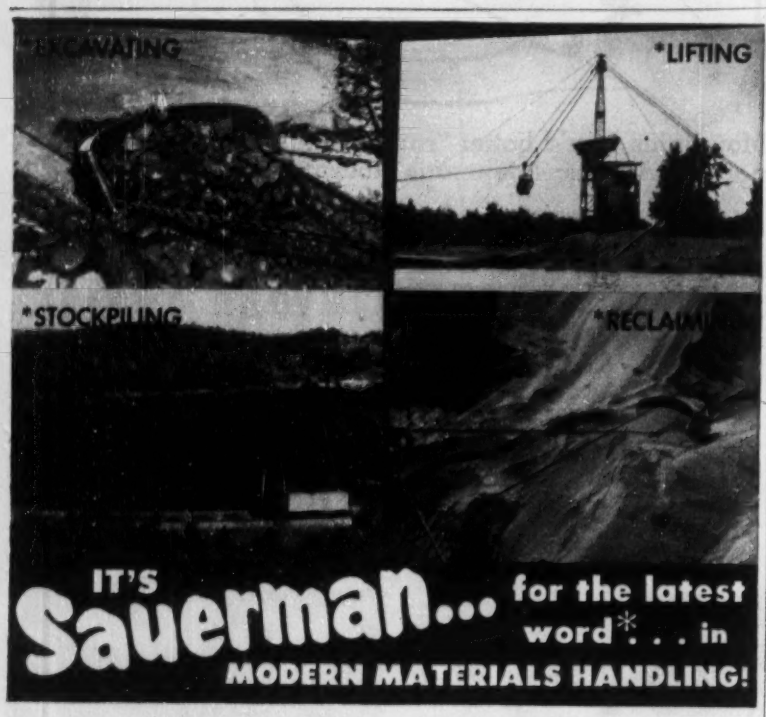
The Austin Co., M & M Bldg., Houston, Tex., CA WAREHOUSE addn., HOUSTON, TEX. Ford Motor Co., 5800 Clinton Dr., Houston, Tex. CD 7/20.

Goodpasture Grain & Milling Co., c/o Grady Goodpasture, Brownfield, Tex. Owner Builds. Approx. **$735,000,** 6 tilt-up concrete type grain storage WAREHOUSES, 1 story, total 240,000 sq. ft., steel frame, etc.; dirt work incl. grading, excavating, leveling; area drainage, LUBBOCK, TEX. CD 7/21.

Chalmers & Barton, Hutchinson, Kan., CA Approx. **$544,118,** Design and Construct, 1 million bu. GRAIN-STORAGE ELEVATOR; and earthwork grading, leveling, drainage, LUBBOCK, TEX. S. E. Cone Grain & Seed Co., 302 Broadway, Lubbock, Tex. CD 7/21.

▲ **Marvin Henry Builders, Inc.,** 2002 Chippendale St., Houston, Tex. Owner Builds. **$359,125,** 38 DWELLINGS; **$341,000,** 35 DWELLINGS; **$392,150,** 44 DWELLINGS, PASADENA, TEX. Grand total $1,092,275. CD 6/3.

Sam Reed & Sons, 9100 East Colfax St., Denver, Colo., Owner Builds, **$500,000,** 45-rental unit MOTEL, Rivera Motel, AURORA, COLO. Richard L. Crowther, 269 Fillmore St., Denver, Colo., archt. and engr.



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FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

CALIFORNIA—BA 8/17—Div. San Francisco Bay Toll Crossings, 2054 University Ave., Berkeley,
Contra Costa Co.—separation structures for Richmond-San Rafael Bridge Contract No. 1015, $700,000. CD 9/29/52.

BIDS ASKED—BUILDINGS

Calif., Orinda—SCHOOL—BA 8/23—Acalanes Union High School District, Lafayette, Orinda High School $500,000. Kump & Assocs., 576 Sacramento St., San Francisco, archts. CD 6/23/53.

▲ **Calif., El Camino**—MUSIC and ARTS—BA 8/24—El Camino Junior College District, Lawndale, 1 story, 43,000 sq. ft., rein.-con. music and arts bldg., El Camino Junior College, $1,000,000. Marsh, Smith & Powell, 208 W. 8 St., Los Angeles, archts. Bids June 22 rejected. LB, **$1,067,000.** CD 7/1, under LB.

▲ **Wash., Vancouver**—HIGH SCHOOL—BA 8/24—School District 37, Shumway Junior High School, 10 rein.-con., steel, high school buildings, $2,000,000. Stewart & Richardson, 222 Central Bldg., Seattle, archts. Plans deposit $100, for general; $50 each of subs. CD 3/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Morrison-Knudsen Co.,** Yuma, Ariz., LB, **$1,168,977,** est. $1,310,464, earthwork, concrete lateral lining, structures for Unit 2, Wellton distr. sys., Gila Proj. Spec. DC 4188, ARIZONA Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids July 13. CD 6/9.

▲ **WASHINGTON**—State Hy. Comn., Olympia,
Manson Constr. and Engr. Co., 5209 E. Marginal Way, Seattle, Wash., CA, **$1,283,265,** Chehalis River Bridge approaches, Grays Harbor Co. Bids July 20, awarded July 21. CD 7/23, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
A. Teichert & Son, Inc., 1931 Stockton Blvd., Sacramento, Calif., CA, **$1,821,227,** grading, paving 4.7 mi. constr. 6 rein.-con. bridges between Austin Rd. and Lathrop Rd., San Joaquin Co. Bids June 30, awarded July 10. CD 7/15, under LB.

† **CALIFORNIA**—Bureau P. Rds., Dpt. Commerce, Old Mint Bldg., San Francisco,
John Delphia & Humboldt Constr., P.O. Box 313, Eureka, Calif., LB, **$754,265.** excavating for road proj., Proj. Calif. F.H. 3-D, Trinity River, 26 mi. east of Arcata, Six Rivers National Forest, Humboldt Co. Bids July 20.

A. J. Peters & Son, P.O. Box 632, San Jose, Calif., LB, **$536,827,** sewage collection sys., Proj. 1-1954, CAYUCOS BEACH, CALIF. Cayucos Sanitary Dist., Cayucos Beach, Calif. Bids July 20.

BUILDINGS

LOW BIDS AND CONTRACTS

Kemp Brothers, 8750 Mettler St., Los Angeles, Calif., CA, **$514,400,** 34,791 sq. ft. Ocean View SCHOOL No. 2, EAST WHITTIER, CALIF. East Whittier School Dist., East Whittier, Calif. Bids June 15, awarded July 20. CD 6/25, under LB.

▲ **Western Projects Corp.,** 3842 Wilshire Blvd., Los Angeles, Calif., Owner Builds, **$1,188,000,** 130 frame, stucco DWELLINGS, Fernview, Jenkins and Scott Aves., EAST WHITTIER, CALIF.

April Builders, Inc., 8900 W. Olympic Blvd., Beverly Hills, Calif., Owner Builds, **$651,794,** 59 frame, stucco DWELLINGS, Michael, Wilshire and Orchard Aves. in Tract 2200, FULLERTON, CALIF. Daniel L. Dworsky, 451 S. Robertson, Beverly Hills, Calif., archt.

Tom E. Norcross, 6053 Atlantic Ave., Long Beach, Calif., CA, **$833,555,** est. $500,000, superstructure for main bldg. of Valley STEAM PLANT, Units 3 and 4 (San Valley District), LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 207 S. Broadway, Los Angeles,

Calif. Bids June 24, awarded July 20. CD 7/2, under LB.

T. A. Stanfield, 2933 Fenelon St., San Diego, Calif., LB, $579,856, 39,000 sq. ft. Point Loma High SCHOOL addn., Point Loma, SAN DIEGO, CALIF. San Diego Unified School Dist., 4100 Normal St., San Diego, Calif. Bids July 20. CD 7/7.

CANADA

BIDS ASKED—BUILDINGS

▲ **Alta., Edmonton**—OFFICE—Bids Asked—Mac Donald Parking Services Ltd., c/o Dewar, Stevenson & Stanley, archts., Northern Hardware Bldg., office, $1,100,000. CD 10/29/52.

▲ **Que., Montreal** — HOUSING — Bids Asked — Realty Project Inc., 5080 Pie IX Blvd., 49 units of 500-unit housing program, Montee St. Leonard, between Azilda St. and Metropolitan Blvd. $4,450,000.

BUILDINGS

LOW BIDS AND CONTRACTS

Kirkwood Investments Ltd., 86 Colborne St., Toronto, Ont. Owner Builds. $450,000. 7 story, bsmnt., 63-suite, brick, concrete APARTMENT, Yonge and Glencairne Ave., TORONTO, ONT. J. E. Hoare Jr., 481 Eglinton Ave. W., Toronto, Ont., archt.

▲ **Bordeaux Housing Corp., Inc.**, 1014 Salaberry St., Montreal, Que. Owner Builds, $1,500,000, 120 one story, 294x30 ft., concrete, brick, stone DWELLINGS, MONTREAL, QUE. J. Damphousse, 408 Des Prairies Ave., Laval des Rapide, Que., archt.

▲ **Douglas Brenner Constr. Ltd.**, 5965 Monkland Ave., Montreal, Que., CA, $1,000,000, two wings, Old People's HOME extension, Upper Lachine Rd., MONTREAL, QUE. Salvation Army in Canada, 1485 Drummond St., Montreal, Que. Sydney & C. S. Comber, 4444 Sherbrooke St. W., Montreal, Que., archts.

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, Kodiak**—SCHOOL—BA 8/25—Alaska P. Wks., Dpt. Interior, 123 Third St., Juneau, 2 story, rein.-con., steel high school addn., 1 story, rein.-con. elementary school addn., Proj. Aaa-50-A-45, $600,000. Plans deposit $25. CD 10/23.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

New Zealand—BA 10/26—New Plymouth Harbor Board, New Zealand, 90x1,100 ft., rein.-con. Moturoa Jetty. W. G. Morrison, 28 Buller St., Wellington, New Zealand, consult. engr.

Proposed Projects

WATER SUPPLY

▲ **Tex., Arlington**—City, water supply lake and dam, $1,975,000; water main, Lake to city limits, $300,000; new c.i. water mains, distr. lines, $375,000; WW sys. rehabilitation work, $175,000; water storage, $200,000; water pumping station unit, $275,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 7/6.

Tex., Fort Worth—Forest Hills (suburb), c/o Geo. P. Gleeson, Burkburnett Bldg., water supply, Forest Hill. $750,000.

▲ **Que., Three Rivers**—City, 6 m.g. concrete water reservoir, $2,000,000. CD 3/24.

SEWERS, WASTE DISPOSAL

Calif., Oxnard—City, sewage treatment plant, interceptor lines, $798,917, Currie Eng. Co., Andersen Bldg., San Bernardino, consult. engr. CD 4/28.

▲ **Ga., Atlanta**—City, City Hall, voted bonds, sanitary sewer imprvs. $2,000,000. CD 6/16.

Mass., Boston—State, Metropolitan Dist. Comn., Sewer Div., 20 Somerset St., Boston, Sect. 135, Framingham trunk sewer, much tunneling, Natick and Framingham, $800,000. CD 5/26.

O., Piqua—City, secondary sewage treatment plant. $982,000. Paul A. Uhlmann Assocs., 1441 N. High St., Columbus, consult. engrs. CD 5/25.

▲ **Tex., Arlington**—City, sewage disposal plant, $200,000; sanitary sewer collection lines, $750,000; sanitary sewerage sys. rehabilitation, $175,000; storm sewers, $200,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 7/6.

▲ **Wash., Tacoma**—City, City Hall, bond election Nov 9, extending S. Tacoma Swamp trunk sewer northerly, $100,000; Arlington storm trunk sewer in S. Tacoma, $800,000; reconstr. T & E Gulch trunk, $600,000; third sedimentation bank at treatment plant, $600,000. CD 3/3.

BRIDGES

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15.

Cuyahoga Co.—piers, abutments and footings, $4,000,000. superstructure, $9,500,000.
piers and abutments for approaches, $5,000,000.

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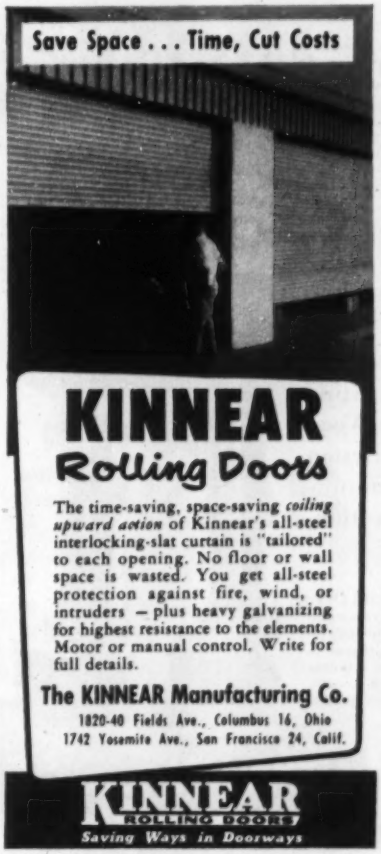

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roads and ramps from Memorial Shoreway to Superior Ave. $10,000,000.
roads and ramps from Superior Ave. to E. 22 St. and Cedar Ave. $10,000,000.
approaches to superstructure, $5,000,000.
interchanges, "Plan S". $13,000,000, foregoing for Freeway-Inner Belt Bridge, City of Cleveland. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York, N. Y., consult. engrs. S. O. Linzell, c/o owner, dir. Hys. CD 8/13/52.

STREETS AND ROADS

▲ **Ga., Atlanta**—City, City Hall, voted bonds, street imprvs. $2,000,000. CD 6/16.
▲ **Minn., Minneapolis**—Hennepin Co., R. F. Fitzsimmons, aud., constr. parallel belt line on County Road No. 18 from Osseo to Minnesota River about 24 mi. four-lane, wid'n., grading, grav. surf. bit. surf., etc. $1,272,000. L. P. Zimmerman, hy. engr.
▲ **NORTH CAROLINA** and **VIRGINIA** — Carolina-Virginia Turnpike Auth., A. H. Graham, chn. Hy. Comn., Raleigh, N. C., and Virginia Coastal Turnpike Auth., Jas. Anderson, comr., Richmond, Va.
Nags Head, N. C. and Virginia Beach, Va.—53 mi. 22 ft. Coastal Toll Rd., $3,000,000, Wm. F. Freeman, Inc., High Point, N. C., consult. engr.

▲ **Tex., Arlington**—City, street paving and imprvs. $1,250,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 7/6.
▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, **Brockville**—80 mi. section of four lane controlled access hy. between Brockville and Quebec-Ontario border part of 542 mi. Ontario Express Hy. 401, $30,000,000. CD 4/27/44.

EARTHWORK, WATERWAYS

▲ **Tex., Brenham**—Washington County Water Imprvt. Dist., Brenham, constr. Somerville Reservoir on Yegua Creek, Lake to be 18 mi. long, 390,000 acre ft. capacity of water. $3,000,000.
▲ **Wisconsin**—Northern States Power Co., 15 South 15 St., Minneapolis, Minn., dam and power house, installing new plant, new outdoor sub-station and transformer, Menomonie $2,922,650; sub-station and 9-mi. tap transmission line, Loyal, $165,149.

PUBLIC BUILDINGS

▲ **Conn., Bridgeport**—CITY HALL—City Planning Comn., City, plans by Harry G. Lindsay, 211 State St., city hall. $1,000,000. CD 10/4/54.

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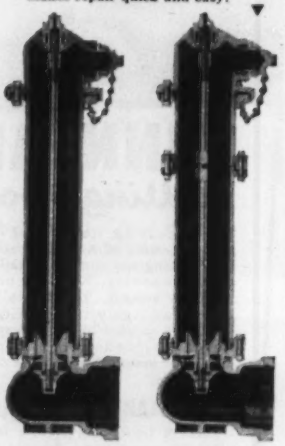

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▲ **Conn., New Britain**—SCHOOL—City, Dr. Joseph T. McCook, supt., 27 Hillside Pl., plans by Perley F. Gibert & Assoc., Inc., 53 Central St., Lowell, Mass., high school west of Carleton St. on north side of Glover Blvd. $1,500,000. CD 5/17.
▲ **Conn., New Britain**—HOSPITAL—State of Conn., Ralph G. Macy, P. Wks. Comr., State Office Bldg., Hartford, 250-bed Memorial Hospital addn. $2,395,000.
▲ **Ga., Athens**—EDUCATION CENTER—Bd. Regents, University System of Georgia, 20 Ivy St., Atlanta, plans by Stevens & Wilkinson, 157 Luckie St., Atlanta, education center bldg., University of Georgia. $2,000,000.
▲ **Ga., Atlanta**—SCHOOL—City, City Hall, voted bonds, school imprvs. $5,000,000. CD 6/16.
▲ **Ga., Atlanta**—TRAFFIC COURT—City, City Hall, voted bonds, traffic court bldg. $1,000,000. CD 6/16.
▲ **Md., Baltimore**—HEALTH DISTRICT—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, $1,000,000 bond election Nov. 2, Western Health District bldg., R. E. L. Williams, bldg. constr. engr. CD 9/21.
▲ **Mich., Big Rapids**—DORMITORY—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, plans by Roger Allen & Assoc., 1126 Grand Rapids National Bank, Grand Rapids, 2 dormitory units. $1,300,000.
▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, clk., voted $1,500,000 bonds July 12, school constr. O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. CD 6/9.
▲ **Minn., St. Paul**—HEATING PLANT—Regents of University of Minnesota, Admin. Bldg., Main Campus, central heating plant on owner's St. Paul Campus, $1,500,000. Helmick & Lutz, Essex Bldg., Minneapolis, consult. engrs. CD 12/31/52.
▲ **Neb., Fremont**—LIGHT AND POWER PLANT—City, light and power plant. $3,204,000. Lutz & May, Finance Bldg., Kansas City, Mo., consult.-engrs.
▲ **N. Y., New York**—HOSPITAL—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, mental hospital on 124 acre tract on Hutchinson River Parkway, south of Pelham Parkway. $45,000,000.
▲ **O., Athens**—SCHOOL—Bd. Educ., $1,100,000 bond election Nov. 2, addns. to grade school and high school.
▲ **O., Canton**—SCHOOL—Bd. Educ., Plain School Dist., $1,670,000 bond election Nov. 2, high school, 2 grade school addns. CD 2/24/50.
▲ **O., Kettering**—SCHOOL—Bd. Educ., Kettering Village School Dist., $1,500,000 bond election Nov. 2, first unit of high school to replace Fairmont High School along Far Hills Ave. between Lincoln Park Blvd. and Rockhill Ave. Rial T. Parrish, Knott Bldg., Dayton, archt. CD 11/10.
▲ **O., Mansfield** — SCHOOLS — Bd. Educ., Mansfield, $2,600,000 bond election Nov. 2, four schools, enlarge 3 existing bldgs. CD 11/6.
▲ **O., Massillon**—SCHOOL—Bd. Educ., $4,125,000 bond election Nov. 2, high school, 4 grade school addns. CD 11/6.
▲ **O., North Canton**—SCHOOL—Bd. Educ., $1,225,000 bond election Nov. 2, grade school and high school.
▲ **O., Ravenna**—HOSPITAL—Comrs. Portage Co., Court House, $1,600,000 bond election Nov. 2, addn. to Robinson Memorial Hospital with surgical unit, dietary dpt., pediatrics dpt.
▲ **O., Shadyside**—SCHOOL—Shadyside School Dist., $1,200,000 bond election Nov. 2, schools.
▲ **O., South Euclid**—SCHOOL—South Euclid-Lyndhurst Bd. Educ., Mayfield and Evanston Rds., Zone 21, $1,100,000 bond election Nov. 2, school addns., site imprvs., Charles Bacon Rowley & Assoc., 2008 Keith Bldg., Cleveland, Zone 14, archts. CD 11/5.
▲ **O., Toledo**—SCHOOL—Bd. Educ., Washington Twp. School Dist., 5700 Whitmer Rd., plans by McLaughlin & Keil, Lima, two 14-room schools, $463,530 each, 8-room school in Lincolnshire area, $338,530; 3 school addns., 8-room school in Sect. 9. Total est. $1,850,000. CD 5/25.
▲ **O., Warren**—JAIL and OFFICE—Comrs. Trumbull Co., Court House, $1,275,000 bond election Nov. 2, county jail and office.
▲ **Pa., Connellsville** — SCHOOL — Connellsville Joint School District, Connellsville, plans by Hunter Caldwell & Campbell, 3601 5 Ave., Altoona, 2 story, bsmnt., brick, concrete, steel high school. $3,000,000. CD 4/11/52.
▲ **Pa., Pittsburgh**—PARKING GARAGE—Pittsburgh Public Parking Auth., 200 Ross St., plans by Hoffman & Crumpton, Century Bldg., parking garage, Smithfield, 4 Ave., Cherry Way and Diamond Sts. $1,000,000.
▲ **Va., Bristol**—SCHOOLS—Washington County School Bd., Bristol, $3,500,000 bond election, school expansion.
▲ **Wis., Chippewa Falls**—INFIRMARY—State, Dpt. P. Welfare, Madison, infirmary, $3,500,000; heating sys. renovation, $557,000; laundry, $500,000; school bldg., $500,000; remodeling old bldgs., $300,000, Northern Colony & Training School.
▲ **Wis., Mendota**—INFIRMARY—State, Dpt. P. Welfare, Madison, infirmary or general treatment bldg., $3,000,000; laundry and equip., $441,560, Mendota State Hospital.
▲ **Wis., Mendota**—BUILDINGS—State, Dpt. P. Welfare, Madison, constr. new buildings New Central Colony & Training School. $6,000,000. CD 9/1.
▲ **Wis., Union Grove**—INFIRMARY, etc.—State, Dpt. P. Welfare, Madison, infirmary and receiving bldg., $1,500,000; central food service bldg., $800,000; boiler replacement, $500,000, Southern Colony & Training School. CD 3/6/44.

▲ **Wis., Waukesha**—BUILDINGS—State, Dpt. P. Welfare, Madison, new buildings, $2,800,000; 4 cottages, $400,000, State School for Boys.

▲ **Wis., Wauwatosa**—CIVIC CENTER—City, City Hall, plans by Grassold-Johnson & Assocs., 734 N. Jefferson St., Milwaukee, Wis., civic center bldg., incl. city hall, library, war memorial, etc. $1,000,000.

▲ **Wis., Winnebago** — REHABILITATION BUILDING—State, Dpt. P. Welfare, rehabilitation bldg., $1,500,000; regressed treatment bldg., $750,000; nurses' home, $675,000, Winnebago State Hospital.

▲ **N. B., St. John**—OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., office bldg. for use by various branches of the Dominion Govt. $1,250,000.

COMMERCIAL BUILDINGS

▲ **Calif., Fullerton**—DWELLINGS—April Builders, 8900 W. Olympic Blvd., Beverly Hills, plans by Daniel Divorsky, 453 S. Ribertson Blvd., Beverly Hills, 171 frame, stucco dwellings, $1,500,000.

▲ **Calif., Los Angeles**—DWELLINGS—California Pacific Constr. Co., 11261 Magnolia Blvd., plans by David Freedman, 407 Commercial Center St., Beverly Hills, 186 frame, stucco dwellings, Roscoe Blvd. and Lurline Ave., $1,750,000.

▲ **Calif., Los Angeles**—DWELLINGS—Reseda Manor 8320 W. Third St., 119 frame, stucco dwellings in van Nuys District, $1,000,000.

▲ **Colo., Denver**—SHOPPING CENTER—University Hills, Inc. and May Co., 16 and Champa Sts., plans by Ervin & Bene, archts. and engrs. Patterson Bldg., 225,000 sq. ft., shopping center and parking area, incl. 2 story store for May Co. $5,000,000.

▲ **Ill., Chicago**—DORMITORY—University of Chicago, Midway and Ellis Sts., plans by Holabird & Root & Burgee, 180 N. Wabash St., Zone 1, girls dormitory. $2,500,000.

▲ **Ill., Chicago**—APARTMENT—John Wentworth, 231 S. LaSalle St., plans by Andrew Rebori, 150 N. Wacker Dr., Zone 6, 25 story apartment, 1240-1234 Lakeshore Dr., site of Robert Lincolns Chicago Home. $2,500,000. DeLeuw Cather & Co., 150 N. Wacker Dr., Zone 6, consult. engrs.

▲ **Ill., Evergreen Park**—SCHOOL—St. Xavier College & Academy, 4928 S. Cottage Grove Chicago. Plans by Naess & Murphy, 80 E. Jackson Blvd., Chicago, high school and parish house, $3,500,000.

▲ **Ill., Skokie**—OFFICE—Henry Shanedling Co., 2025 Nicollet St., Minneapolis, Minn., plans by Ralph E. Stoetzel, 111 W. Monroe St., Chicago, Zone 3, 3 story bsmnt. office, Lincoln and Cicero Aves. $1,000,000.

▲ **Mass., Beverly**—HOSPITAL—Beverly Hospital, Frederick Ayer Sr., pres., Herrick St., plans by Stone & Webster, Inc., 49 Federal St., Boston, hospital addn. $1,500,000. CD 12/5/49.

▲ **Mass., Norwood-Westwood**—PESIDENTIAL—Norwood Properties, Inc., c/o Joseph H. Rosenshine, 161 Devonshire St., Boston, residential development. $22,000,000.

▲ **Mass., Springfield**—SHOPPING CENTER—Springfield Properties, Inc., 11 Beacon St., Boston, shopping center site of old Springfield Airport between Liberty St. and St. James Ave. $5,000,000.

▲ **N. J. Trenton**—HOSPITAL WING—Mercer Hospital Bd. Directors, 446 Bellevue Ave., plans by Micklewright & Mountford, 72 Ewing St., Trenton, and Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., 8 story 100-bed hospital wing. $3,000,000. CD 9/21.

▲ **O., Chardon**—DWELLINGS—Hilltop Realty Co., Henry Petti, vice pres., 5148 Mayfield Rd., Lyndhurst, Zone 24, 93 dwellings, 1½ acre lots on Mayfield Rd. Munson Twp., Pebblebrook Farms estate $2,350,000.

▲ **O., Cleveland**—OFFICE DEVELOPMENT—Commerce Plaza Inc., Syndicated, c/o Albert A. Levin, atty., National City Bank Bldg., Zone 14, office development, incl. one 4 story building and two 1 story office structures with underground and roof parking, $7,000,000.

▲ **O., Springfield**—SHOPPING CENTER—W. Lyman Case Realty Co., 130 E. Broad St., Columbus, Circus Shopping Center, incl. 31 stores with 465,000 sq. ft. business area on 20 acre tract at Limestone St. and Leffel Lane, parking space, $5,000,000.

▲ **Pa., Bridgeville**—SHOPPING CENTER—Great Southern Pittsburgh Mart, Inc., Berger Bldg., Pittsburgh, plans by C. Melvin Frank, 53 W. Long St., Columbus, O., 1 story, steel brick shopping center Route 28, Collier Twp., $5,000,000.

▲ **Tenn., Nashville**—SHOPPING CENTER—William H. Criswell Realty Co., Union Bank Bldg., Nashville, plans by Marr & Holman, engrs.-archts., Stahlman Bldg., shopping center consisting of 2 bldgs., with aggregate floor space of 184,550 sq. ft. located on 30 acre tract, $2,250,000.

▲ **Tex., Dallas**—APARTMENT—Vernon & James Smith, 2151 Fort Worth Ave., plans by Adams & Adams, 518 W. Davis St., Oak Crest Housing 2 story 332-apartment units, 83 separate bldgs., brick exterior, concrete frame, concrete pier and beam fdn. $1,500,000.

▲ **Va., Petersburg**—SHOPPING CENTER—Grandale Realty Co., Petersburg, shopping center, incl. 6 stores, $2,000,000.

▲ **Va., Richmond**—OFFICE—711 E. Franklin St. Bldg. Corp., c/o E. Tucker Carlton, archt., 1009 E. Main St., 10 story, 60x159 ft., brick, cast stone office and 65-car parking space, $2,500,000.

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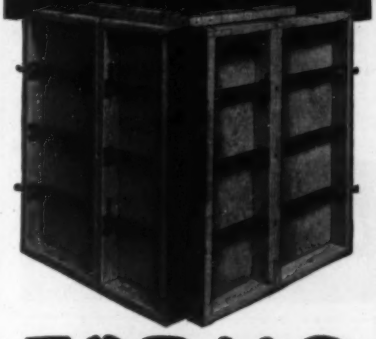

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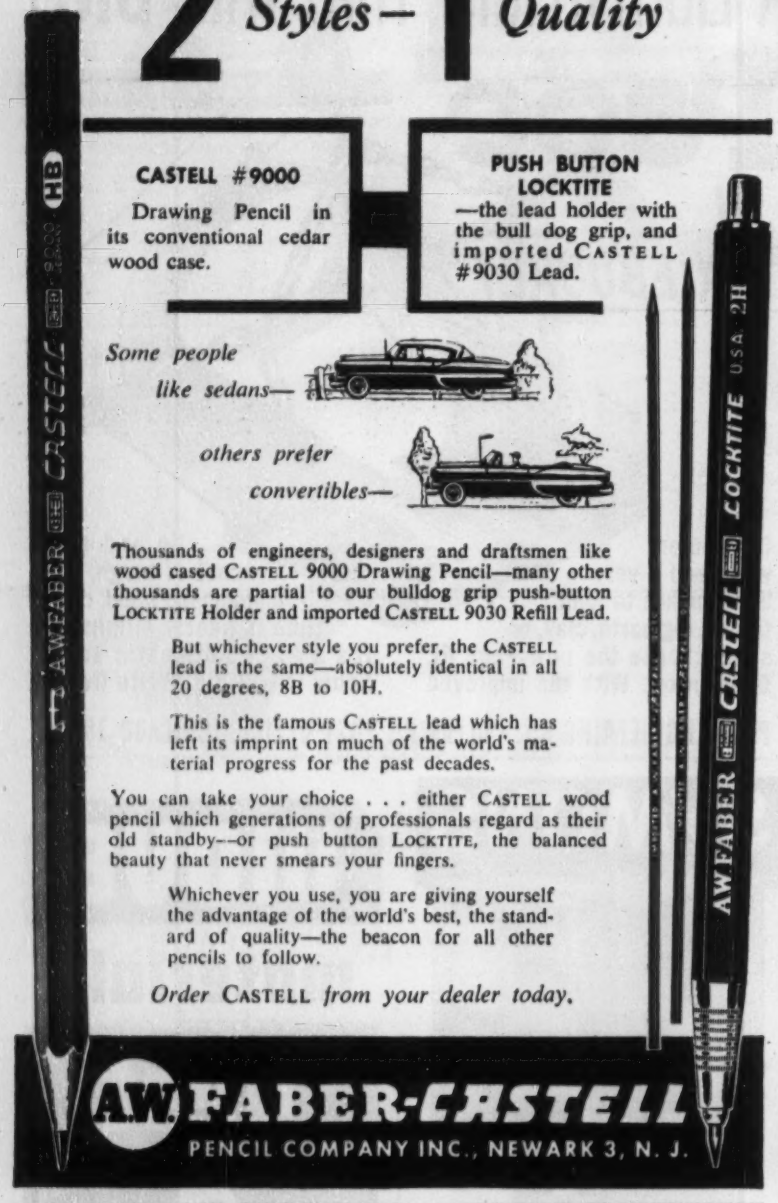

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▲ **Wash., Seattle**—HOUSES—A. L. LaPierre & J. Peterson, Times Square, Zone 1, 1,600 houses in Mountlake Terrace, north of here. $16,000,000.

▲ **Wis., Milwaukee**—SHOPPING CENTER—Froedtert Enterprises Inc., 735 N. Water St., Zone 2, plans by Grassold-Johnson & Assocs., 734 N. Jefferson St., Zone 2, 14-store Southgate Shopping Center addn. $1,500,000.

▲ **Ont., Cooksville**—RESIDENTIAL DEVELOPMENT—Dell Constr. Co. Ltd., Murray Ellas, 2461 Bloor St. W., Toronto, residential development, 707 houses, 624 row type single houses, 110 apartment suites, shopping center, 2 schools, sewage and water plants. $35,000,000.

▲ **Ont., Toronto**—RESIDENTIAL COMMUNITY—Farlinger Development Ltd. & Associated Companies, 752-A Yonge St., residential community on 1,000 acres in Norty York Twp., housing and apartments, 800 apartment suites, sewer and transportation facilities. $100,000,000. Dr. E. G. Faludi, 614 Church St., consult. engr.

▲ **Ont., Toronto**—RESIDENTIAL DEVELOPMENT—Torjax Investments Ltd., 2461 Bloor St. W., residential development incl. 624-row-type houses, 707 houses, 1,200 multiple dwellings,, apartment, shopping center, stores etc., on Highway No. 5, Burnhamthrope Rd., Erindale Station Rd., Cooksville, $35,000,000. Dell Constr. Co. Ltd., 2401 Bloor St. W., consult. engrs.

▲ **Que., Hull**—DWELLINGS—Hull Development Syndicate c/o A. L. Achbar, 85 Main St., Hull, 500 brick dwellings, on former Wright Estate, $4,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., San Francisco**—HEADQUARTERS, etc.—S & W Fine Foods, Inc., 155 Berry St., plans by Albert F. Roller, Crocker, First National Bank Bldg., 2 story, 27,000 sq. ft. international headquarters, warehouse and mfg facilities, $2,500,000. CD 2/5/47.

▲ **Colo., Rico**—PLANT—Rico Argentine Mining Co., James E. Hogle, Rico, flotation and roaster plant, $1,500,000.

▲ **Fla., Haines City**—PLANT—Citrus, Inc., Emory L. Cooke, pres., Haines City, concentrate plant, $1,250,000.

▲ **Ill., Skokie**—FACTORY—Croname, Inc., 3701 Ravenswood St., Chicago, Zone 14, plans by Graham Anderson Probst & White, 80 E. Jackson Blvd., Chicago, Zone 4, 300,000 sq. ft. factory, on Touhy near Carpenter Rd. $3,000,000. CD 9/24/51.

▲ **Mass., North Andover**—PLANT—Western Electric Co., 195 Broadway, New York, N. Y., mfg. plant, $10,000,000, Charles T. Main, Inc., Chamber Commerce Bldg., Federal St., Boston, consult. engr. CD 11/9.

▲ **Mich., Detroit**—RESEARCH—Ford Motor Co., 3000 Schaefer St., Dearborn, plans by Giffels & Vallet, Inc., 1000 Marquette Bldg., 1 story, 87,000 sq. ft. masonry research bldg. mfg. methods and processes, 12723 Telegraph Rd. $1,000,000.

▲ **Mo., St. Louis**—PLANT—Marlo Coil Co., 6135 Manchester Ave., Zone 10, existing plant addn., also office on portion of 23 acre tract Grand Blvd. and Blow St. $1,300,000.

▲ **Tex., Fort Worth**—PLANT—United States Cold Storage Corp., Stockyards, Fort Worth, 230x700 ft., cold storage plant, $1,000,000.

▲ **Tex., Handley**—PLANT—Texas Electric Service Co., 111 N.E. 2 St., Grand Prairie, electric generating plant. $7,000,000.

▲ **Ont., Sarnia**—ENGINEERING—Imperial Oil Ltd., 56 Church St., Toronto, plans by John B. Parkin Assoc., 717 Church St., Toronto, 2 story, 45,000 sq. ft. steel engineering bldg. at oil refinery, $1,500,000, R. W. Dunlop, 445 S. Christina St., Sarnia, engr. CD 11/17/50.

▲ **Ont., Toronto**—BREWERY—Carling's Breweries Ltd. 16 Gould St., brewery in Etobicoke Twp., $10,000,000.

UNCLASSIFIED

▲ **Ga., Atlanta**—FREIGHT YARD—The Nashville, Chattanooga & St. Louis Ry., J. C. Akers, ch. engr., 930 Broadway, Nashville 3, Tenn., freightyard. $12,000,000.

▲ **Md., Baltimore**—PARK and RECREATION FACILITIES—City, Bureau Parks & Recreation, Municipal Bldg., Zone 2, $2,400,000 bond election Nov. 2, various park and recreation facilities. CD 11/17/50.

▲ **Md., Baltimore**—STREET LIGHTS—City, Bureau Electric Service, Municipal Bldg., Zone 2, $2,000,000 bond election Nov. 2, conversion of gas street lights to electric.

▲ **Ohio**—PIPE LINE—Ohio Fuel Gas Co., 99 N. Front St., Columbus, 17 mi. 20 in. pipe line and 29 mi. 24 in. pipe line, 3,000 hp. compressor to increase movement of gas from its Columbia Gas System affiliate the United Fuel Gas Co. of Charleston, W. Va., Jackson, Vinton, Hocking and Fairfield Counties, $3,832,700.

▲ **Texas**—OIL PIPE LINE—Texas Eastern Transmission Corp., 1903 Blodgett St., Houston, constr. 58 mi. 16 and 20 in. crude oil pipe line Joaquin to Longview. $3,269,000.

▲ **Washington, British Columbia and Alaska**—CABLE—American Telephone & Telegraph Co., 195 Broadway, New York, N. Y., 800-mi. submarine cable from Port Angeles, Wash. to Ketchikan, Alaska. $14,000,000.

▲† **Alaska**—PIER—The Alaska Railroad, Dpt. Interior, Anchorage, pier. $2,900,000. CD 6/16/53.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 10 Massachusetts
STREETS AND ROADS
August 10, 17 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,
The Savin Constr. Corp., 10 Village St., East Hartford, Conn. CA $2,643,550. Contr. 222, paving 29.7 mi. northern section between Auburn and Augusta. CD 7/27, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
V. Barletta Co., 110 Whipple Ave., Roslindale, Mass. LB, $2,213,276. grade crossing elimination, Contr. No. 2, Worcester. Bids July 27. CD 7/2.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 10 Maryland — August 18 Delaware
August 19 New York
STREETS AND ROADS
August 10 Maryland — August 16 New Jersey
August 18 Delaware — August 19 New York

BIDS ASKED—BUILDINGS

▲ **Pa., Mount Lebanon**—HOSPITAL, etc.—BA 8/11—Methodist Hospital & Home for Aged, Mt. Lebanon, 4 story, bsmnt., L-shaped, steel, brick, concrete hospital and home, $1,200,000. Sterling & Wolfe, 119 E. Montgomery St. N.S., Pittsburgh, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comm., Harrisburg,
Badgett Mining & Stripping Corp., Madisonville, Ky., LB, $2,388,986, 4.11 mi. Northeastern Extension in Kidder Twp., Carbon Co. Bids July 28. CD 7/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Town & Country Builders, Inc.,** 175 Main St., White Plains, N. Y., Owner Builds, $4,000,000 200 HOUSES, Secar Rd., ARDSLEY-HARTSDALE, N. Y.

▲ **Berry Hills Homes,** c/o John Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y., Owner Builds, $3,000,000. 325 HOUSES on tract on Montauk Highway, east of Lakeland Ave., BAYPORT, N. Y.

▲ **Audwin Gardens Homes,** c/o Par-Sen Realty Corp., 70 W. Montauk Hy., Lindenhurst, N. Y., Owner Builds, $2,000,000 225 HOUSES, on 74-acre tract on Clift St., east of Carlton Ave., CENTRAL ISLIP, N. Y.

▲ **Highland Ridge Homes,** c/o Joseph Kaprow, archt., 277 North Ave., New Rochelle, N. Y., Owner Builds. $1,000,000 44 HOUSES on 16-acre tract on Old Wilmot Rd. between Rogers Dr. and Grand Blvd., NEW ROCHELLE, N. Y.

▲ **M. Syracuse & Sons,** c/o Seymour Orlofsky, 199 Main St., White Plains, N. Y., Owner Builds. $1,250,000. 56 HOUSES on tract on Victory Blvd., near Hanson Lane, NEW ROCHELLE, N. Y.

▲ **Pine Hills Park Homes,** c/o Walter Rostenberg, 47 Mamaroneck Ave., White Plains, N. Y. Owner Builds, $3,800,000, 150 HOUSES on tract on Old Lyme Rd., PURCHASE, N. Y.

▲ **Preston Park Homes,** c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds, $2,000,000, 175 HOUSES on tract on Jericco Turnpike east of Route 106, SYOSSET, N. Y.

▲ **United Engineers & Constructors, Inc.,** 1401 Arch St., Phila., Pa., CA. Estimate. $100,000,000. Design and Construct ELECTRIC GENERATING STATION on 120-acre tract adjoining Esso Bayway Refinery, LINDEN, N. J. Public Service Electric & Gas Co., 80 Park Pl., Newark, N. J. CD 10/23/44, under New Jersey.

▲ **Rose & Fisher Co.,** 200 E. Ohio St., Pittsburgh, Pa. CA Approx. $1,000,000. 2 and 3 story, 145x247 ft. OFFICE, 57x169 ft. SHOP, steel frame, brick and block constr., incl. dock, Stowe Twp., PITTSBURGH, PA. Continental Transportation Lines, 1813 N. Franklin St., Pittsburgh, Pa. Charles M. & Edward Stotz, 801 Bessemer Bldg., Pittsburgh, Pa., archts.

▲ **Clement Martin, Inc.,** 6230 Penn. Ave., Pittsburgh, Pa. CA $1,680,229. 3 story, bsmnt., irregular steel frame SENIOR HIGH SCHOOL addns., Mount Lebanon, PITTSBURGH, PA. Bd. Educ. of Mount Lebanon, 735 Washington Rd., Pittsburgh, Pa. CD 7/16 under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 13 Kentucky
STREETS AND ROADS
August 13 Kentucky

BIDS ASKED—BUILDINGS

▲ **W. Va., Morgantown**—BASIC SCIENCES—BA 8/31—Bd. Governors West Virginia University, Morgantown, 5 story basic sciences bldg., 1,000 room teaching, clinical, pre-clinical, medical, dental, nursing, pharmacy, laboratory, etc. $15,000,000. Plans deposit $400. C. E. Silling & Assoc., Masonic Temple, Charleston, archts. CD 6/4.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Ziken Constr. Co.,** 430 W. Roosevelt Rd., Chicago, Ill., CA, $1,488,826, 2 underground structures,, gen. purpose, shed, mess and sanitary requirements, Nike Launching Stations, Chicago and Lombard, ILLINOIS. U. S. Eng., Merchandise Mart, Chicago 54, Ill. Awarded July 12.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 12, 13 Kansas — August 17, 18 Texas
STREETS AND ROADS
August 12, 13 Kansas — August 17, 18 Texas

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Dickman, Pickens & Bond Constr. Co.,** Gazette Bldg., Little Rock, Ark. and R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La., CA Est. $2,000,000. Hardwood PLANT, CROSSETT, ARK. Crossett Companies, Crossett, Ark.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Paul C. Helmich Co.,** McMinnville, Ore. CA, $1,146,000. clearing basis behind Timothy Meadows Dam, 1,433 acres, Clackamas Co., OREGON. Portland General Electric Co., 610 S.W. Broadway, Portland, Ore. Bids July 15, awarded July 23. CD 7/8.

▲ **American Pipe & Constr. Co.,** 518 N E Columbia Blvd., Portland, Ore. LB, $1,276,525, expansion of grain elevator terminal No. 4;
Foothills Constr. Co., 1780 S. W. Ridgecrest Dr., Oswego, Ore. LB, $186,400. 190x340 ft. transit warehouse, Terminal No. 1, PORTLAND, ORE. Portland Public Docks Comn., 3070 NW Front St., Portland, Ore. Bids July 21. CD 7/6.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento
Duncanson-Harrelson Co., 530 W. Cutting Blvd., Richmond, and **Pacific Bridge Co.,** 256 Montgomery St., San Francisco, Calif., LB, $3,017,427, prestressed conc. girder and rein.-con. girder and T-beam bridge at Richardson Bay, Marin Co.;
Lowrie Paving Co., 1755 Evans Ave., San Francisco, Calif., LB, $265,531, wid'n., surf., approaches, wid'n. 2 bridges on Golden Gate Bridge Approach, San Francisco Co. Bids July 21. CD 7/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hebb & Narodick,** 232 4 Ave. N., Seattle, Wash., Day Labor, $1,500,000, 109 HOUSES, near Seattle-Tacoma Airport north of Angle Lake, south of SEATTLE, WASH.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **BRITISH COLUMBIA**—B. C. Toll Hys. & Bridges Auth., Victoria,
Northern Constr. Co. & J. W. Stewart Ltd., 1304 Hornby St., Vancouver, B. C., CA, $1,699,059 approaches and substructure for Agassiz-Rosedale Toll Bridge over the Fraser River. CD 7/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Winston Park Developments Ltd.,** 843 Wilson Ave., Toronto, Ont., Owner Builds. $12,000,000. 40-APARTMENTS, Shephard Ave. and Keele St., 4-acre SHOPPING CENTER, TORONTO, ONT. CD 6/18/53.

(Proposal Advertisements see pp. 77 to 80)

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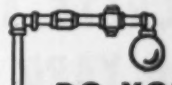

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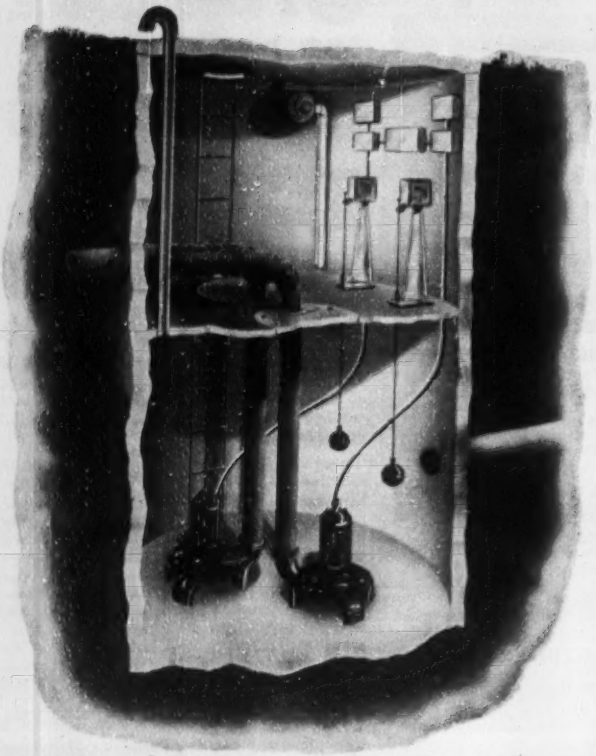

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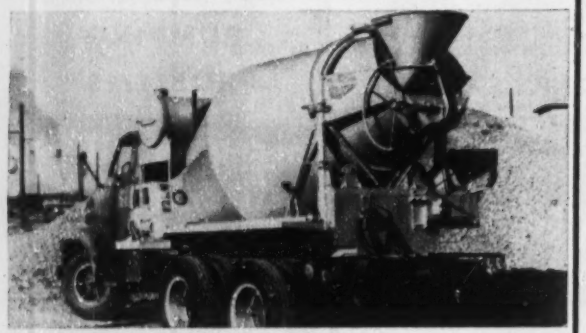

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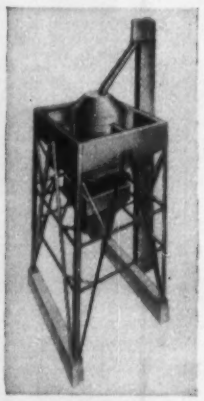

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	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg	50 c.y., del.
Atlanta	$3.87	$3.56	$3.40	$2.07‡	$2.07‡	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60‡a	2.60‡a	2.00‡a	2.75‡a	2.80‡a	2.65‡a	2.60‡a	.17	.17a	11.45
Birmingham	3.47	2.75e	....	2.25n	2.25n	2.08n	2.64	2.64	1.35	1.45	.165	.165	11.00
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	.....	.....	.215	.245a	12.00h
Chicago	3.63	3.32	3.35	3.25‡b	3.25‡b	3.65‡b	3.25‡b	3.25‡b	2.25‡	2.25‡	.23	.23b	12.00
Cincinnati	3.91	3.70	3.70	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.205	.225a	10.95
Cleveland	N. A. in C. L.	3.19e	....	2.05f	1.85f	1.65	4.10a	4.10a	3.35‡	3.15‡	.....	.22	14.40d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11g	.2675	9.40
Denver	4.24	3.94	4.24	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255a	10.50
Detroit	3.72	3.17	3.50	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.21a	12.70f
Kansas City	3.52	3.22	3.30	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	.....	.....	.21a	.24c	12.00b
Los Angeles	4.72a	4.26a	5.20	2.21a	2.41a	2.21a	2.16a	2.26a	.....	.....	.135fm	.245m	11.88h
Minneapolis	4.10h	3.79h	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	2.75‡ag	.....	.....	.19i	.....	12.75n
Montreal	3.16ac	2.96ac	....	3.00o	3.00o	2.25	1.65ij	1.90ij	.....	.....	.20	.20a	10.55ab
New Orleans	3.50	3.17	3.48	2.32	2.32	1.82	....	....	1.05	1.25	.275	.....	12.90
New York	4.01	3.70	3.53	2.85bk	2.85bk	1.90bk	2.70bl	2.70bl	.....	.....	.....	.....	14.05an
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡*p	2.75‡*p	2.15‡*p	2.30‡	2.40‡	2.00	1.90	.22/.25	.....	12.50ao
Pittsburgh	3.62	3.34	3.62	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.28	13.00
St. Louis	3.60/3.83b	3.29/3.55b	3.45/3.62	3.10am	2.90am	2.30/2.90am	1.70j	1.70j	1.50	1.50	.22	.28ci	11.40
San Francisco	3.67	3.27	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28el	12.15e
Seattle	4.80a	3.55a	3.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	.....	.....	.25i	.3325i	12.30j

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *e* Truckload lots, destination price. *h* LCL. SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1-3 mi zone. *p* Add 10¢ for ea. add'l mi zone.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10-100 cy. brackets. *d* 1-3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 8% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.90†	Buffington, Ind.	$2.85†	Steelton, Minn.	$2.95†	Muskegon, Mich.	$3.00†	Toledo, O.	$2.90†
Clinchfield, Ga.	2.90†	Independence, Kan.	2.80†	Leeds, Ala.	2.75†	Saginaw, Mich.	2.90†	Milwaukee, Wis.	3.05†
Kingsport, Tenn.	2.90†	Hannibal, Mo.	2.85†	Duluth, Minn.	2.95†	Wyandotte, Mich.	2.90†	Green Bay, Wis.	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa.	2.75†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	2.85†	Ironton, O.	2.75†
Nazareth, Pa.	2.75†	Universal, Pa.	2.95†	Alpena, Mich.	2.80†	Oswego, N. Y.	3.00†	Montreal City	2.66
Bath, Pa.	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich.	2.90†	Cleveland, O.	2.90†	W. Winfield, Pa.	2.95†

† *Prices to hold for third quarter of* 1954.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 18-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration: Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration: Tank car	Drums	CUTBACK ASPHALT MC Per ton: Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION RSI Per gal.: Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.0851i	0.175i	.09iu[K]	.18iw[K]	.09i	.095i	0.185i
Birmingham	.....	49.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.09F	.....	.09a	.10aG	.22aG
Chicago	155.00‡	85.00‡	3.60/3.65‡j	19.85b	29.85b	18.85bv	28.85bv	.094bwH	.1740bwH	.0725b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	70.00d	5.03g	23.00A	.....	23.00A	.....	.1025Awy[P]	.....	.....	.11AG	.18AG
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	1960
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	27.21	.....	27.21v	.....	.1188wI	.....	.0792	.....	.211
Kansas City	e	e	e	15.00el	.....	.06	.....	.065*wJ	.....	.055c	0.10	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dvx	.....	18.00dzK	.....	17.00dv	.0825j	.1725j
Minneapolis	.....	.....	2.97h	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	e	e	27.00n	39.60n	.135n	.198n	16.50nu	20.90nu	.132n	.197ns	.239ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	....o	.085ew	....o	.0825B	.085BL	.....
New York	.....	.....	2.75f	23.89qCD	44.32qD	22.89wtCD	43.57wtD	.1023*CDF	.1889wDF	.....	.1023CD	.1918D
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09uF	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00R	40.00R	.098	.11	.224
St. Louis	.....	.....	.....	18.55f	.....	.1713	.....	.0865wM	.....	0.155	.10	.....
San Francisco	.....	55.00*	.....	17.50g	33.00gp	17.50gkv	33.00gkv	20.00gN	37.50gN	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	24.50K	.....	19.75hv	.085h	.095hv

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *c* 2¼ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3" *h* 2" int., 9# treat. *i* 3 x 3¾ x 8½. *j* 2½", 6lb. tr.
ASPHALTS: *a* Price at plant, Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50-110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *A* F.o.b. refinery, Cleveland. *B* F.o.b. Destrehan, La. *C* Bulk. *D* Prices based on transporting to Manhattan via truck. *F* Also RC. *G* Also MS, SS. *H* RC 0 -5 incl. *I* MC 4. *J* MC, RC .0675. *K* MC 3, 4 & 5. *L* MS. *M* MC 1-5, RC 1-5, .080. *N* MC 3.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$4.25	$4.225	$4.30	$8.90		$89.00	$107.00	Not	$5.425	$7.30	$5.275	....
Chicago Area	4.25	4.225	4.30	8.90	$5.075	89.00	107.00	avail-	5.425	7.30	5.275	....
Pittsburgh Area	4.25	4.225	4.30	8.90	5.075	89.00	107.00	able	5.425	7.30	5.275	$11.00
Buffalo Area	4.25	4.225	4.30	8.90	5.075	89.00	107.00	....	5.425	7.30	5.275	11.00
Cleveland	....	....	4.30	8.90	5.075	.....	.....	....	....	....	....	11.00
Youngstown Area	....	....	4.30	....	....	.....	.....	....	....	7.30	....	....
Geneva	4.25	4.225	....	....		.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	5.075	.....	.....	....	....	7.30	....	....
Pueblo	4.30	4.70	4.75	....	....	.....	95.00	....	5.425	7.30	5.275	11.00

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	Rail steel	EXPANDED METAL LATH*k* Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.31	$7.11*s*	$7.11*s*	$38.00‡	$42.00‡	
Baltimore	7.02	7.06*j*	....	42.00	45.00	
Birmingham	6.35	6.15*t*	6.15*t*	50.00*v*	55.00*v*	
Boston	7.59*a*	7.37	7.37	38.50	42.50	
Chicago	6.69	5.78*gu*	5.78*gu*	43.00‡	50.00‡	
Cincinnati	6.93*ak*	6.91*rv*	....	39.00*ms*	43.00*ms*	
Cleveland	7.02	5.76*c*	....	36.50‡	40.50‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	7.95	7.20*c*	....	48.00*n*	59.00*m*	
Detroit	7.16	7.19*dw*	....	50.50	54.50	
Kansas City	7.35*a*	7.57	....	45.00	50.50	
Los Angeles	7.55*fd*	7.05	....	51.00	57.00	
Minneapolis	6.92*d*	7.53*b*	7.53*b*	34.50	38.50	
Montreal	7.25–8.00*c*/9 20*A*	6.05*i*	6.05*i*	46.00*A*	51.00*A*	
New Orleans	....	6.05*akz*	....	66.00	60.00	
New York	7.48	7.00*y*	7.00*y*	38.50*ns*	44.00*ns*	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.55	6.55*z*	6.55	37.60	39.60	
St. Louis	7.09*a*	6.30*c*	6.30*c*	55.00*l*	56.00*l*	
San Francisco	7.50	6.85*j*	....	41.50	47.50	
Seattle	5.00*e*	6.55*cj*	....	51.00*nr*	57.00*nr*	

Quantity extras, per cwt: under 100*#*, +$4; 100–399*#*, +$2; 400–999*#*, +85¢; 1000–1999*#*, +30¢; 2000–9999*#*, base price; 10,000–19,999*#*, +40¢; 20,000–39,999*#*, —40¢; 40,000*#* and up, + — 50¢

EXTRAS, per cwt—*Quantity: less than 700*#*, +50¢; 700–1499*#*, +25¢; 1500–7999*#*, +10¢ *Sizes: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢ *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job) *Spirals (unassembled into fab. unit): hot roll. rods, +$1.75; cold drawn wire, +$2.75; *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70 *Design only: +60¢

*‡ Delivered *a 2000–9999*#* *b 10,000–15,999*#*, fob city *c 20 tons or over *d 10,000–19,999*#* *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4*#* per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v add 15¢ del. *w add 20¢ del. *z add 5¢ switch *y add 30¢ del. *2 add 10¢ del. *A American made *C Canadian made † Number system replaces inch system of classifying bar sizes, effective this issue. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 8" Pr Cl. 150	12" Sew Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.	*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote		
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$0.90*m*	$3.40*m*			
Baltimore	121.50	1.45	2.42	.546	1.053	4.275*n*	11.3775	178.20	274.80	.95	2.60			
Birmingham	108.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25*m*	2.75*m*			
Boston	122.00	1.47	2.20	.581*grt*	1.1205*grt*	4.635*grt*	12.1975*grt*	187.80*r*	289.20*r*	1.62*mg*	3.95*mg*	3½ to 6 in., Lap Weld† Galv.	13.50*ta*	8.75*ta*
Chicago	107.00	1.45	2.20	.70*m*	1.35*m*	5.62*m*	13.50*m*	150.00‡	270.00‡	.80	2.80	Black	3.75	7.50*t*
Cincinnati	106.00	1.47	2.29	.581*t*	1.120*t*	4.64*t*	12.20*t*	225.00	350.00	.80*m*	2.95*m*	⅝	27.75*ta*	13.50*ta*
Cleveland	108.00	1.47	2.29	.49*s*	.945*s*	3.96*s*	10.65*s*	155.00*m*	245.65*m*	.82*m*	3.10*m*	Black	20.50*ta*	7.75*ta*
Dallas	112.00	1.47	2.54	.439	.799	4.00*b*	9.17*b*	.....	.....	.49	1.60	2½ & 3 in., Butt Weld† Galv.	18.00	18.00
Denver	115.00	1.53	2.54	.45*n*	.78*n*	3.48*n*	....	.....	.....	.74*m*	2.50*m*	⅝	18.00	18.00
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00*m*	350.00*m*	.86	3.47	Black	16.00	17.00
Kansas City	113.00	1.47	2.29	.53	.945	3.87	10.60	250.00	480.00	.80	3.25*g*	2½ & 3 in., Lap Weld† Galv.	18.00	18.00
Los Angeles	129.65	1.53	2.39	.67*l*	1.46*l*	5.97*l*	14.89*l*	228.20*l*	348.90*l*	.95	2.75*l*	⅝	18.00	18.00
Minneapolis*w*	112.00	1.40	2.42	.75*mo*	1.36*mo*	5.60*mo*	....	.....	.....	1.42*h*	4.05*h*	Black	20.50	20.50
Montreal	110.00	....	....	1.07*u*	1.73*u*	5.52*u*	8.93*u*	.....	.....	1.17*h*	3.11*j*	⅝	17.00	5.00*b*
New Orleans	101.50	1.45	2.42	.53	.965	5.13	....	300.00*p*	500.00*p*	.65	2.29			
New York	111.35	1.47	2.20	.66	1.28	5.08	13.42	.....	.....	1.15	3.00			
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95*s*	12.65*s*	300.00‡	350.00‡	1.60*h*	3.95*h*			
Pittsburgh	110.00	1.47	2.20	.468*m*	.864*m*	3.88*m*	9.78*m*	152.00	244.00	1.05*h*	2.50*h*			
St. Louis	112.00	1.45	2.29	.56	1.03	4.22	9.80	180.00‡	380.00‡	1.20*bl*	2.85*bl*			
San Francisco	127.00	1.53	2.29	.61*d*	1.41*d*	5.78*d*	14.32*d*	235.00‡	392.00‡	1.05*m*	3.30*n*			
Seattle	122.00	1.54	2.42	.51*b*	.91*b*	....	....	150.00*e*	.....	.85*k*	2.75*k*			

	Mill
Lorain, Ohio	
Aliquippa, Pa	
Sparrows Pt., Md	
Benwood, W. Va	
Youngstown, O	
Indiana Harbor, Ind	
Sharon, Pa	
Wheatland, Pa	
Etna, Pa	
Fontana, Calif	

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d 88361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track

*WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8¢; 1 in., 8½¢; 1¼ in., 11½¢; 1 in., 17¢; 1½ in., 23¢; 1¾ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

† Threaded and coupled. *a 3½ to 4 in. b Continuous weld. *c 5 and 6 in. *d 6 in.

Joliet, Ill., Donora, Pa., Monessen, Pa.....$3.18 — 4 × 16 in., No. 5 & 10 wires
Joliet, Ill., Donora, Pa., Monessen, Pa.....$2.08 — 4 × 12 in., No. 3 & 12 wires
Joliet, Ill., Donora, Pa., Monessen, Pa.....$3.33 — 6 × 6 in., No. 6 & 6 wires

BITUMULS® saves you money on maintenance

BITUMULS IS ASPHALTIC BINDER IN EMULSION FORM. Applied cold, it bonds well with every type of clean surface; it thoroughly coats all types of aggregates, wet or dry. It can be used in damp weather and even at relatively low temperatures. For the deep penetration required on trench repair (above), Bitumuls has no equal.

These features add up to real savings on any maintenance program: you save the time and expense of heating: you eliminate the need of a special prime or tack coat: you work with local aggregate of all kinds, lowering the expense of importing material: you save time lost due to showers: and you can start work-season earlier, keep going later in the year.

Bitumuls is available in grades for all types of maintenance work. Fast Setting for Sealing, Surface Treatment and for Penetration work; Mixing Grades for fast, uniform coating of a wide range of aggregates, from sand to clay-gravel.

There are Bitumuls Engineers who work out of offices near you. Call on them whenever you feel that they can assist on maintenance problems.

Ask for our new booklet, "BITUMULS FOR MAINTENANCE." It gives full technical information, with methods of application.

AMERICAN Bitumuls & Asphalt COMPANY

200 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala.
Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La.
St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore.
Washington 5, D. C. San Juan 23, P. R.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR — *All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face) All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)*									LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	¼"	¾"
Atlanta	† $77.60	$80.00	$73.00	$74.00	$77.50	$81.00	$79.00					$22.32	$27.24
Baltimore	* 87.00	92.00	80.00	85.00	88.00	95.00	100.00			$170.00	$170.00	25.92	31.60
	120.00g	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*$135.00*	*$135.00*				
Birmingham	† 75.50	77.50	70.50	80.50	82.50	85.50	95.50			115.50	155.50	21.78	26.58
	100.00	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*				
Boston	* 95/103a	100/102a	92/106a	93/107a	100/112a	104/114a						25.92	31.60
	$ *80.00n*	*80.00n*	*115.00*	*118.00*	*118.00*	*118.00*	*115.00*	*116.00*	*116.00*				
Chicago	**105.00	107.00	91/92	110.00	112.00	115.00	112.00			139.00	139.00	22.45	27.37
	109.00	*110.00*	*114.00*	*112.00*	*112.00*	*116.00*	*120.00*	*120.00*	*120.00*				
Cincinnati	* 92.00	97.75	82.00	91.00	97.75	100.25	110.75			136.00	136.00	25.00	30.48
	110.75	*110.75*	*112.25*	*111.25*	*112.25*	*111.25*	*138.50*	*138.50*	*138.50*				
Cleveland	** 92.00	94.00	90.00	96.00	100.00	101.00						25.37	30.93
		108.00	*108.00*	*108.00*	*108.00*	*108.00*	*115.00*	*115.00*	*115.00*				
Dallas	k† 70.00	80.00	68.00	68.00	63.00	65.00	130.00			125.00	128.00	18.72	22.80
Denver	* *Not in stock*		*122.00*	*123.00*	*123.00*	*124.00*	*125.00*	*135.00*	*140.00*			13.92	16.98
Detroit	‡ 115.00	118.00	110.00	115.00	122.00	122.00						25.00	30.48
	104.00	*104.00*	*104.50*	*104.50*	*105.25*	*105.25*	*108.50*	*115.00*	*115.00*				
Kansas City	* 110.00	110.00	110.00	110.00	110.00							16.56	20.16
	125.00	*125.00*	*130.00*	*130.00*	*130.00*	*137.50*	*170.00*	*170.00*	*170.00*				
Los Angeles	*l 112.00*	*112.00*	*112.00*	*112.00*	*112.00*	*112.00*	*123.00*	*128.00*	*123.00*			16.61ab	20.25ab
Minneapolis	# *145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*165.00*	*165.00*	*165.00*			19.89	24.25
Montreal	ab 88.00	97.00	88.00	88.00	100.00								
	110.00	*110.00*	*110.00*	*110.00*	*110.00*	*110.00*	*105.00*	*105.00*	*105.00*				
New Orleans	† 100.00	100.00	92.50	85.00	90.00	94.00	118.00			150.00	148.00	18.72	22.80
	† *106.50*	*106.50*	*116.50*	*116.50*	*116.50*	*116.50*	*116.00*	*122.00*	*122.00*				
New York	§ 110.00	113.00	115/118	120/125	120/125	125/130	155/165			225.255	225/255	25.92	31.60
			Range from $120.00 to $125.00				*140/155*	*150/160*	*150/160*				
New York	** 80.00	82.00	69.00	81.00	84.00	85.00	115.00			190.00	190.00		
	88.00	*89.00*	*95.00*	*94.00*	*95.00*	*95.00*	*106.00*	*115.00*	*115.00*				
Philadelphia	‡	Range from $110.00 to $127.00				110/127	110/127			210/220	210/220	25.92	31.60
		Range from $128.00 to $158.00				*125/132*	*135/120*	*150.00*	*150.00*				
Pittsburgh	†	Range from $95.00 to $100.00					110/120			110/120	110/120	25.92	31.60
	125.00	*125.00*	*125.00*	*125.00*	*125.00*	*130.00*	*130/140*	*140/155*	*140/155*				
St. Louis	fv 110.00e	112.00e	101.00d	113.00d	123.00e	122.00e						18.72	22.80
			118.25d	*130.00e*	*130.00e*	*130.00e*	*180.00e*	*180.00*	*186.00*				
San Francisco	A† *63.00*	*63.00*	*76.00*	*77.00*	*74.00*	*75.00*	*74.00*	*74.00*	*74.00*			12.22	14.91a
Seattle	† *85.00*	*85.00*	*85.00*	*85.00*	*85.00*	*85.00*	*95.00*	*95.00*	*95.00*				

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. and.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce b Tax exempt. c 5M lots. d 8–12 ft. lengths. e 8–16 ft. lengths. g No. 1 common. i 8 ft. lengths. k No. 3 common. n #3. A Rail freight rate from North west mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock.

For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $171.00; on ¾", $191.00. Exterior plyform ¼" $190.00, ¾" $212.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. a Lower rate by water shipment b 80,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1956a, Single or Double Thickness		EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
	A quality	B quality		
Atlanta	79%	80%	$0.2365	
Baltimore	78%d	80%d	.2365	
Birmingham	83%	83%	.1640	
Boston	77-10%	77-10%	.2365	
Chicago	76%	76%	.2365	
Cincinnati	76%	76%	.2365	
Cleveland	76-10-10%	76-10-10%	.2765	
Dallas	75%	75%	.2440	
Denver	79%	79%	.2415	
Detroit	78-10-10%	78-10-10%	.2365	
Kansas City	80-10%	80-10%	.2415	
Los Angeles	73%	78%	.2390	
Minneapolis	75-10%	75-10%	.2415	
Montreal	40-5%bc	40-10-5%b	21.35h	
New Orleans	78%	79%	.2415	
New York	80-10%	80-10%	.3975g	
Philadelphia	78%	80%	.2365	
Pittsburgh	80%	80%	.2090	
St. Louis	80-10%	80-10%	.2415	
San Francisco	70%	70%	.2365	
Seattle	73%	76%	.2390	

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass: a Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. c Single thickness. d Discount 6/15/52.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. h F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215 – .229	.2415 – .249
Rocky Mtn. States	.189 – .2015	.2215 – .229	.2415 – .254
Pacific N. W. States	.1865 – .199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165 – .219	.2365 – .2415

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail — Pine*	By Rail — Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in. — 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.50/.58	....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in. — 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in. — 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in. — 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots;

		8'x8"x8' Untr.	8'x8"x8' Tr.	7'x9"x8'8" Untr.	7'x9"x8'8" Tr.
Boston	Oak††	c	....	....	....
	Pine	s	....	....	....
New York	S. L. Sap Pine	$2.00	$4.00	$3.00	$5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.20a	....	4.10/4.20a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.10	....	2.40	....
	Red Oak	2.00	2.60a	2.30	2.95a
	Sap Pine or Cypress	....	2.45a	....	2.80a
San Francisco	Douglas Fir	2.08af	3.08af	2.73bf	3.93caf
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.— Treated; Untr.— Untreated. a Creosoted. b 7" x 9" x 8'. c Empty cell. e Green. f F.o.b. cars. h No constant price available. i Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.75
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.00	$27.38	$27.38	$19.00	$17.50	$.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00k	41.00k	32.00	21.50	.....
Birmingham	126.00p	136.00p	.....	284.00p	.....	.....	26.50ff	32.00gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.25†	.....	.....	36.85p	39.85p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	30.80	26.00	.....
Cincinnati	185.00f	195.00f	260.00fdd	.....	.....	.....	45.00f	46.00f	26.00f	26.00f	.....
Cleveland	170.00**	181.00**	.....	.....	.....	.....	34.50	34.50	28.25	23.25	32.00ee
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80bb	28.00bb	34.00bb
Detroit	130.00	138.00	259.00	.....	315.00	360.00	37.75ee	38.50ee	34.00	30.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	175.00p	196.00p	407.00p	196.00p	.....	.....	35.00pp	45.00	40.00bbe	30.00bbe	42.00bbde
Montreal	165.00aq	181.00au	325.00au	230.00	248.00r	.....	39.50	46.00	34.80	22.00	13.75u
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	147.30h	157.10h	216.00eh	238.10hn	.....	.....	40.00	.....	36.00	32.00	.....
Philadelphia	145.30	155.00	290.60	348.70	.....	.....	30/34	35/42	25.00	23.00	2.97
Pittsburgh	138.00	151.00	260.00	228.00	297.00	341.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	142.00ee	160.00ee	319.00ee	465.00ee	361.00	621.50	40.00ss	38.50s	.90aaa	.75aaa	1.25aaspee
San Francisco	156.85n*	177.10n*	235.30ddn*	.....	.....	.....	37.00	.....	26.60	26.60	2.65m
Seattle	228.00ee	280.00ee	.....	240.00eew	.....	.....	34.00s	49.00s	42.00sAA	37.50	3.90mAA

† F.o.b. yard Roxbury. a Smooth. b Per 50 lb. bags. c 6 x 12 x 12 in.-3 cell. d Pulverized hot. e 5%, 10th following month. g 5½ x 8 x 12. h F.o.b. trucks, job site N.Y.C. j Truck load or over. k $1.00 discount l Red face. m Per bbl., 180 lb. n 7½ x 7½ x 12. Speed title. p Truck lots. q Provincial and Municipal tax extra. r Not used because of earthquake danger. s 2% discount for cash. t 5½ x 8 x 11½. u Tax exempt. v Sand lime. w 5 x 8 x 12. y Stacked. z Pebble lime price per 80 lb. sack. aa Price per sack. Lime not sold per ton. bb LCL. cc Truck delivery. dd 6 x 12 x 12. ee Pebble lime. ff 80% common. gg Select. AA LCL. § F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 500-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases In oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 300 lb. bbl. per ton
Atlanta	$16.75	$28.275	$3.26	$3.51	$3.01	$2.74	$3.01	$2.98	$0.405	$39.75
Baltimore	16.50	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.56
Birmingham	16.75	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00ee
Boston	16.50	27.90	....	....	....	2.70gg	2.66oo	2.66oo	.42g	48.50g
Chicago	16.50	27.90	....	....	....	2.74‡u	2.74‡o	2.74‡o	38.00‡bbr	48.00‡
Cincinnati	16.50	27.90	....	....	....	2.50	2.585	2.585	46y	47.86
Cleveland	16.50	27.90	2.39ppg	2.59gg	2.65gg	2.50q	2.35e	2.35e	38y	40.70AA
Dallas	16.75	28.65	....	4.05	....	3.50q	3.75e	4.35e	36	58.50AA
Denver	17.00	28.40	3.29	5.15	3.04	2.50	2.25e	2.35e	43ff	45.00
Detroit	16.50	27.90	2.35	3.25	2.50	2.50	2.35f	2.35	.48	44.00
Kansas City	16.50	28.65	....	2.71ye	2.65	3.40	3.20o	3.20o	.43	53.00
Los Angeles	16.50	28.15	3.30*	4.50*	4.20*	2.63*	1.70e*	l	.58*	l
Minneapolis	16.50	29.88/28.02	....	....	....	2.50idd	2.35hidd	2.35hidd	.38idd	42.00v
Montreal	....	20.95	2.95#//	4.05#//	3.25#//	4.00t	3.65f	3.65f	1.06hi	3.30hi
New York	16.50	27.90	....	....	....	2.50e	2.35eo	2.35eo	.42ez	42.00e*
Philadelphia	16.50	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.50	27.90	2.65	2.85	3.15	2.75	2.50e	2.50e	.38	45.00
St. Louis	16.50	27.90	....	....	....	2.33	2.15h	2.15h	.33y	48.45
San Francisco	16.50	28.15	2.40	....	3.40	2.95	4.00aa	....	.49	....
Seattle	16.50	28.40	3.07mee	2.93mee	....	3.58moce	3.05hmee	....	.50mee	52.00mee

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. a Red lead prices change frequently due to pig lead price changes. b U. S. War Dept. Spec. 3-49A. c ASTM Spec. D266-31. d 80% minimum ferrie oxide. e 15 lb. f Per 432 sq. ft. g F.o.b. yard, Roxbury. h Per roll. 65 lb. i Net carload lot prices; Minneapolis and vicinity. k Per cwt. l Not used. m 1% discount for cash. n F.o.b. city. o Per 60-lb. p 6-drum, 50 gal. ea. q Per 90-lb. roll. r F.o.b. factory, Chicago. s 466 Med. t Federal tax included. u Per 90 lb. square. v Per ton. w Price to large paint contractors is $1.25 less per 100 lbs. x Mineral surfaced. y 55-gallon container. z Drums. aa Approximate cost delivery. bb Roofers coating and cement; Price per ton. cc LCL, truck gal. drums. gg F.o.b. factory. hh Incl. freight. D. Std Black. E. Ready-mixed. F. Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. e Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.75	$2.50	$2.90	$2.75	$2.90	$1.28	$1.28
Baltimore	3.20d	2.75	3.275f	3.10/3.25	3.075f	2.975	2.975f	1.675f	1.675f
Birmingham	3.15	2.40	2.825h	2.245	2.62	3.00	2.875h	1.30	1.40
Boston	3.185*	2.75	3.15f	3.20	3.30f-e	3.13#	3.10d	2.14#	2.14#
Chicago	3.55k	3.30r	3.35m	3.15m	3.525s	3.53f	3.39s	2.50sV	2.50sV
Cincinnati	3.325	2.975w	2.99tw	28.5/3.10	3.10	3.28N	3.335V	2.02**	2.12
Cleveland	3.325f	3.275f	3.275f	3.275	3.275	3.275	3.25r	2.525	2.525
Dallas	3.50	2.625	2.875	2.75	3.437	3.10	2.90	1.45	1.45
Denver	3.50	2.85	2.75w	2.705w	3.30	3.00	3.05	1.875	1.875
Detroit	3.45ee	3.21r X	3.33s	3.20s	3.49dI	3.52#	3.125h	2.45s	2.45s
Kansas City	3.625	2.75	2.90	2.725/2.97	3.25	2.987e	3.075h	2.03	2.03
Los Angeles	3.285O	2.70	2.925h	2.57	3.437#	3.20	3.225r	2.15	2.15
Minneapolis	3.225	2.80	2.92	2.75	3.00	3.15n	3.00	2.05	2.05
New Orleans	3.10	2.47	2.85m	2.65	2.675	2.925hw	3.00s	1.425	1.425
New York	4.15hr	3.57hJ	3.975s	3.84f	4.15A	3.63asF	3.815hL	2.415J	2.415J
Philadelphia	3.92d	3.20	3.51#M	2.975/3.72s	3.625S	3.55s	3.515e	1.95	2.25
Pittsburgh	3.625h	3.20h	3.225hY	3.325h	3.30h	3.35	3.00	2.10h	2.10h
St. Louis	3.62c	3.125h	3.10h	3.125h	3.25h	3.28c	3.05#	2.175h	2.175h
San Francisco	3.475hk	2.99h	3.075hw	2.66w	3.45ah	3.225U	3.275hK	2.125h	2.125h
Seattle	3.40d	2.75f	2.95h	2.75	3.25f	3.06 X	2.95T	2.25	2.35f
Montreal*†	2.00	1.80w	1.90	1.70	2.00	1.90	1.90	1.25	1.40

* Cost of living bonus now included in basic wage. ‡ Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

• 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. d Incl. 10¢ H&WF. e Incl. 10¢ VF. f Incl. 6% WF. g Incl. 11½¢ WF h $2.725 homes & housing plus 7½¢ WF. i Incl. 17¢ WF j Incl. 10½¢/hr. WF. k Incl. 7½¢/hr. WF. l Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 25¢ H, W, Ins., Vac. & Retirement. o Incl. 10¢ PF, 7¢ WF. p Incl. 3% WF, 3% PF. r Incl. 4% WF and 20¢ PF. s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. t Incl. 7½¢ H&WF. u Incl. 1½% WF. v Incl. 10¢ WF. w Negotiating. x Incl. 8¢ WF. y Incl. 22½¢ WF. z Incl. 7½¢ IF, 5¢ H&WF. A Incl. 15¢ WF, 15¢ PF & 20¢ B.F. B Incl. 3% WF. C Incl. 2½¢ H&WF. E Plus 5% WF, plus travel pay per day. F Plus $4/per day Annuity contrib. G Incl. 11¢ H & WF. H Incl. 7¢ WF, 6% VF. I Incl. 15¢ H&WF. J Incl. 5% WF, 6PH. K Incl. 10¢ H&WF, 10¢ VF, 2½% PF. L Incl. 3% WF, 3% PF, 2% VF, 1% EF. M Incl. 7½¢ PF. N Incl. 1% WF. O Incl. 2% WF, 1% PF. R Incl. 12¢ WF and 1¢ apprentice. S Incl. 12½¢ H and WF. T Incl. 21¢ H, W & VF. U Incl. 7½¢ WF, 4% VF, 1% PF. V Incl. 8½¢ WF. W Incl. 2% VF. X Incl. 6¢ VF. ** Correction: July $2.02. Y Correction: 3.225 from 9/53 to date.

MEXICO CITY PRICES

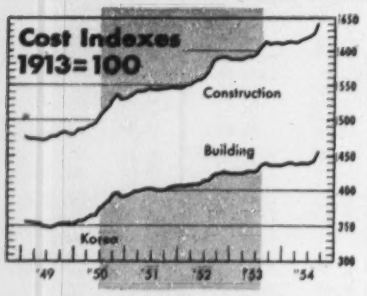
In Pesos, F.o.b. City		June '54	July '54
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.10	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.00	1.09
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.48	2.73
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.48	2.73
Struct. Iron Workers (8 hr. day)....Remachadores.	av. per hr.	1.24*	1.37*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1428.62	1428.62
Reinf. Steel, Corr. Rods ⅜" x 11 meters	per ton	1490.00	1490.00
½" x 11 meters	per ton	1490.00	1490.00
⅝" x 11 meters	per ton	1490.00	1490.00
¾" x 11 meters	per ton	1490.00	1490.00
⅞" x 11 meters	per ton	1490.00	1490.00
1" x 11 meters	per ton	1490.00	1490.00
Gravel truck load of 3½ cu. meters Blue Gravel	per tr. load	60.00	60.00
Rose Gravel	per tr. load	62.00	62.00
Cement, Std. Port. (Toltesa)	per ton	160.00	160.00
Lumber 3rd Class Pine‡	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1500.00	1500.00
2nd Class Pine	per M ft.	1300.00	1300.00

* 1st & 2nd fl., add 40% ea. addn'l floor over preceding one.

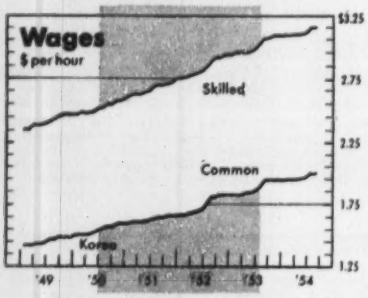
‡ Substitute for OYAMEL now restricted.

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.148 **ENR Common Average:** $2.009.

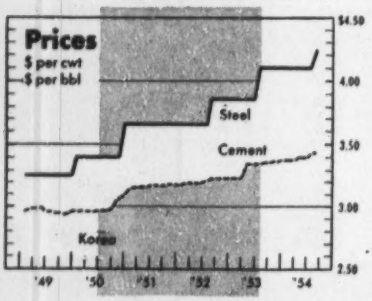
AUGUST CONSTRUCTION SCOREBOARD



ENR INDEXES (1913 = 100), 20-cities' average	1954 Aug.	% Change from last Month	% Change from last Year
Construction Cost	642.05	+2.3	+4.8
Building Cost	455.51	+2.6	+4.3
WAGE RATES, 20-cities' average			
Common	$2.009	+0.6	+4.4
Skilled (aver. 3 trades)	3.148	+0.1	+2.8
Bricklayers	3.436	+0.2	+2.5
Structural Ironworkers	3.100	0.0	+2.8
Carpenters	2.909	+0.1	+3.3

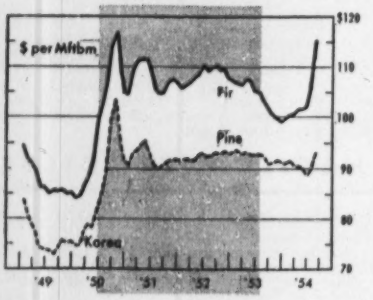


MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.454	+0.8	+3.0
Structural Steel, (3-mill aver.), per cwt	4.250	+3.7	+3.7
Sand, per ton	2.242	+0.4	+3.1
Lumber, 2x4 Fir, per M. ft. bm	115.514	+8.8	+12.0
Lumber, 2x4 Pine, per M. ft. bm	93.217	+2.5	+0.7
Common brick, per M	33.237	0.0	+1.6
Ready-mixed concrete, per c. y	12.124	+0.3	+1.8
Structural Clay Tile, 3x12x12 per M	162.115	+0.3	+1.7



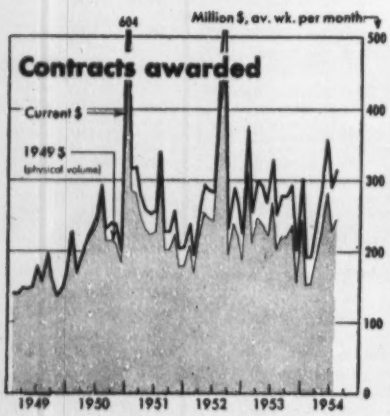
CONTRACTS AWARDED (Millions)	1954 July	1954 7-Mos. (30-Weeks)	% Change from '53 July	% Change from '53 7-Mos. (31-Weeks)*
Total U. S. (ENR reported)	$1,575.0	$8,078.7	+24.7	− 8.9
Private	834.2	4,565.0	+25.7	−10.2
Public	740.8	3,513.7	+23.6	− 7.3
Federal	191.3	740.6	+15.3	−21.3
ENR Volume Index, '13 = 100	547	525	+22.4	+10.3
NEW CAPITAL (Millions)				
Total	2,408.1	7,172.9	+20.6	+14.1
State & Municipal Bond Sales	353.2	3,415.9	−40.8	+22.7
Corporate Security Sales	373.8	1,896.8	−23.6	−25.9
Federal (non-federal work)	587.3	705.8	+175.6	+168.8
Federal (federal work)	1,093.8	1,154.4	+56.9	+71.7

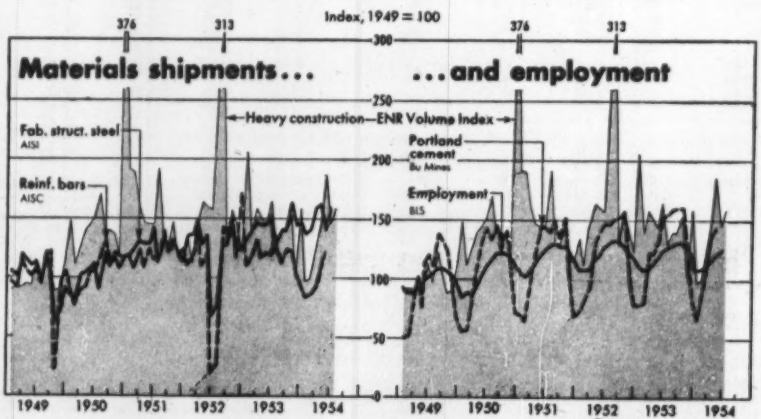
* Computed on weekly average



MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1954 May (M) June (J)	5-Mos. (5) 6-Mos. (6)	% Change from '53 Mo.	% Change from '53 Yr.-Cum.
Cement, bbls, Bu. of Mines	24.888(M)	93.540(5)	+ 8.6	+ 1.3
Fabr. Struc. Steel, tons AISC	.290(J)	1.622(6)	+ 5.5	+ 3.9
Lumber, mil. ft. bm., NLMA	3.169(M)	15.321(5)	− 6.4	− 7.4
Lumber Prod., mil. ft. bm., NLMA	3.273(M)	15.591(5)	+ 0.1	− 2.9
Contract Const. Employ., BLS	2.742(J)	2.505(6)†	+ 1.1	+ 0.4

† Average





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Construction awards increase pace for July

Private housing, highways, bridges spark rise as industry narrows gap under '53 business

Following a quickening pace that is rapidly narrowing the gap between business this year and last, heavy construction contracts reported by ENR climbed to $1.6 billion during July—to make the third highest July on record, and a rise of 25% over July a year ago.

The spurt in July awards pushes the seven-month total contract volume for the year to nearly $8.1 billion—9% under 1953 in the same period, and thus the fourth biggest year on record, so far, in total contract dollars.

• **High points**—Both public and private construction awards were higher than in June 1954, or July 1953.

Private contracts averaged $167 million per week, to make the second largest July volume on record. And the month was also the second biggest July for state and local public works—averaging $110 million per week.

Federal awards also increased (for the fourth consecutive month) although weekly volume fell sharply toward the end of the month. While the average federal volume of $38 million per week was higher than June '54 or July '53, it was well below the high levels of July '51 and July '52.

• **Highways, bridges**—In the individual categories of construction reported by ENR, highways, with $225 million, and bridges, with $74 million, led the public works field. Both categories scored their biggest totals for the present year, and were up from the same month a year ago.

Public buildings other than housing held steady for the month, but the $209 million in awards in this category was 36% below the July '53 mark. On the other hand, public housing rose sharply to $47 million, led the public works field. Both categories scored their biggest totals for the present year, and were up from the same month a year ago.

Waterworks held about even with June, while sewerage volume declined. Both categories were substantially lower in volume than in July 1953.

Earthwork and waterways—reflecting higher federal volume—climbed up to $31 million in July awards. This was the biggest contract month in 1954, although it was still lower than a year ago.

Housing boom appears, starts top '53

Moving fast, after a slow start early in the year, the nation's homebuilding industry apparently is well on its way to another record year for 1954, it seemed clear this week.

The U. S. Bureau of Labor Statistics reported that in June 115,600 units were started—the largest number of private units in one month since September of 1950—the record year. The June 1954 starts were 13% higher than for June 1953.

For the first half of this year, said BLS, private starts totaled 564,100 units—up 2% over the same period in 1953. But observers seemed convinced that 1954 will end up with a much bigger increase over 1953: in 1953, starts sagged badly during the second half, after a fast start; while in 1954, the start was slower but the trend is moving upwards at an increasing rate. It wasn't hard, in fact, to tree the experts with an opinion that 1954 would wind up with the second highest starts in housing history, at somewhere around the 1,125,000-unit mark.

• **Other indicators check**—Contract awards reported by ENGINEERING

(Continued on page 74)

ENGINEERING CONSTRUCTION CONTRACTS—JULY 1954

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Five Weeks—Thousands of Dollars (000 Omitted)

	July, 1954						U. S. Cumulative Seven Months		% Change	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1954 (30 weeks)	1953 (31 weeks)	'53 to '54 Av. Wk.	July 1954
Public Works											
Waterworks	342	1,367	1,743	3,784	3,892	4,622	15,750	127,153	143,420	− 8	3,817
Sewerage	1,329	9,525	5,184	5,655	5,042	9,933	36,668	223,294	243,262	− 5	3,406
Bridges	9,036	12,187	32,532	6,630	8,243	5,785	74,413	261,567	359,036*	−25	2,090
Earthwork and drainage	170	761	8,795	2,113	7,941	10,957	30,737	164,981	250,338	−32	20,866
Streets and roads	11,806	42,080	23,790	51,342	54,282	41,446	224,746	1,035,434	1,082,079	− 1	6,980
Public buildings, residential	2,420	20,458	6,991	9,579	5,725	1,548	46,721	140,921	285,056	−49	6,295
Other public buildings	11,890	59,699	36,948	31,197	35,095	34,388	209,217	1,037,776	1,032,810	+ 4	16,790
Unclassified	7,808	17,107	23,029	5,687	30,185	18,766	102,582	522,590	522,490	+ 3	11,063
Total public	44,801	163,184	139,012	115,987	150,405	127,445	740,834	3,513,716	3,918,491*	− 7	71,307
Federal government (included in above classifications)	9,481	41,599	40,787	7,407	47,941	44,057	191,272	740,631	972,868	−21	18,708
Private											
Bridges				1,900	1,900		3,800	6,650	7,052	− 2	
Industrial buildings	6,812	32,838	24,637	31,452	11,661	24,766	132,166	1,051,791	1,635,285	−34	56,427
Mass housing	15,480	168,295	19,930	101,332	168,643	35,731	509,411	2,558,860	2,299,495	+15	31,615
Commercial buildings	3,838	21,102	16,943	14,907	39,618	13,504	109,912	720,850	724,427	+ 3	13,062
Unclassified		254	37,436	2,935	36,346	1,892	78,863	226,813	583,870	−60	3,651
Total private	26,130	222,489	98,946	152,526	258,168	75,893	834,152	4,564,964	5,250,129	−10	104,755
Total Engineering Construction:											
July, 1954 — 5 weeks	70,931	385,673	237,958	268,513	408,573	203,338	1,574,986				176,062
June, 1954 — 4 weeks	62,840	259,763	172,469	220,865	291,529	153,287	1,160,753				174,176
July, 1953 — 5 weeks	56,710	337,365	206,749	270,868	273,459	117,841	1,262,992				94,495
Seven Months — 1954	444,076	2,067,732	1,088,994	1,732,627	1,814,980	930,271		8,078,680		− 9	788,283
Seven Months — 1953	414,044	2,077,570	1,699,860	1,981,598*	1,929,717	1,065,831			9,168,620*		633,857
% Change '53 to '54 (Av. Wk.)	+11	+3	−34	−10	−3	−10					+29

* Revised

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NEWS-RECORD confirm the private housing boom.

At the end of June, ENR's mass housing contracts were 5% ahead of last year, and by the end of July the increase was 15%.

These figures, of course, include projects costing $300,000 or more—so they are not exactly comparable to the BLS estimates, which attempt to cover all housing construction, regardless of size. But they are a confirmation of the BLS trend.

• **BLS changes system**—To keep more accurate check on the growing housing boom, BLS announced recently that it has designed and put into effect a better means of measuring housing starts. Here's how it works:

BLS still uses reports from building-permit issuing officers, and still estimates housing volume in those areas that do not issue permits.

But the agency's series now covers 6,800 permit-issuing areas, compared to 4,500 used as basis for the old series: thus assuring that 85% of the total housing figure each month is based on actual building permit reports. Under the old system, only 75% of the total reported represented building permit data, with 25% estimated from sample data.

Additionally, BLS has increased its sampling area (for non-permit estimating) from 96 to 131 counties.

And to give a more accurate picture of housing activity, BLS will break down its new figures into four regions, and each region into metropolitan and non-metropolitan areas.

The new series begins with 1954 figures—but BLS statisticians say they can be compared with figures for previous years.

MC&S moves to acquire Marion Shovel control

Taking another step in its rapid moves to diversify its interests (which now include shipbuilding, concrete pipe manufacture and a steel company, as well as construction work) Merritt-Chapman & Scott has disclosed an agreement to acquire controlling interest in the Marion Power Shovel Company.

According to MC&S, it would acquire the holdings in Marion of the Ohio Company, an investment banking organization which owns 276,815 shares of Marion common. This acquisition would give the New York firm something like 80% of outstanding Marion stock, although MC&S said it had reserved the right to accept a lesser percentage.

Consent decree ends chlorine anti-trust action

An eight-year-long anti-trust action against chlorinating equipment manufacturers ended last week in federal court at Providence, R. I., with the signing of a consent decree and fines levied in a companion criminal action.

The consent decree was signed for the government and for two Bellville, N. J. firms—Wallace & Tiernan, Inc., and Industrial Appliance Corp. It bars the companies from engaging in certain practices that were alleged to give them a monopoly of the chlorinating equipment business, and orders the two firms to make certain patents available on a royalty-free basis, and to dedicate certain other patents to the public.

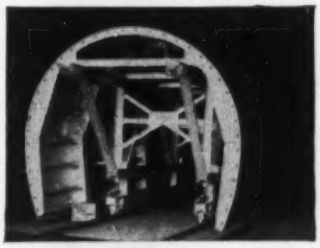
The criminal action was ended on a plea of "nolo contendere" by Wallace & Tiernan, Novadel-Agene Corp., Wallace & Tiernan Products Inc., Wallace & Tiernan Sales Corp.; Industrial Appliance Corp.; and Builders Iron Foundry of Providence, R. I., another defendant. Defendants were fined in amounts ranging from $5,000 to $15,000.

Original charges against the companies were filed in November 1946, and dismissed later that year on the ground that the grand jury that brought in indictments was illegally constituted. The charges were brought again early in May 1947 (ENR May 8, 1947, p. 1).

In a statement released to the press following the announcement of settlement of the case, Wallace & Tiernan pointed out that settlement of the cases will be "less burdensome on the company than a protracted trial with its attendant costs and diversion of executive time." The statement pointed out in particular that the company signed the agreement "without trial of any issue of fact or law, and without admission by the parties in respect to any issue."

The judgment relates only to W&T's domestic chlorination business in the sanitary field, the statement added—largely municipal water and sewage treatment plants and swimming pools—which accounts for roughly 15% of W&T's consolidated corporate revenues.

Other participants in the case withheld comment, except to point to the saving in time and expense possible through such settlement of the case.



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. . . SPEED TUNNEL JOBS

Mayo produces all types of Tunnel Forms—telescopic, non-telescopic, separate sidewall and arch, single unit, full round forms for monolithic pours, etc. Each is designed for the exact requirements of the job—be it Tunnel, Sewer or Conduit!

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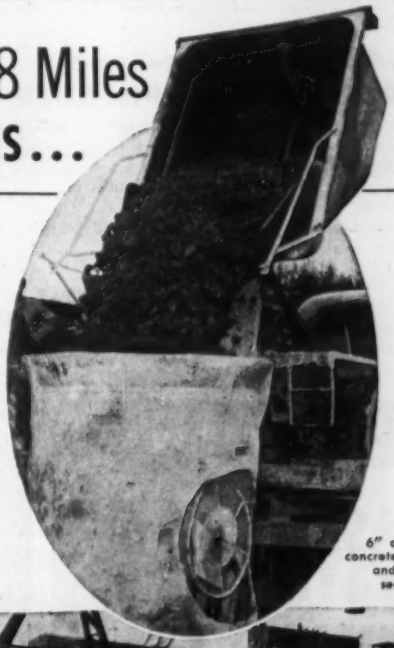
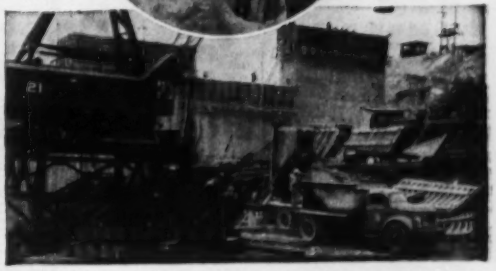
Top quality and uniform concrete is delivered to Ft. Patrick Henry Dam in Tennessee after 8-mile haul in non-agitating units. Of the 75,000 yards of air-entrained concrete, about ⅔ contains 6" aggregate. Ten Dumpcretes haul 4.4 cu. yds. per load—about 600 yds. per 7½ hour shift! TVA now uses 30 high-speed rugged Dumpcretes on this and five other projects. Write today for complete report on this job.



6" aggregate concrete uniform and with no segregation

Plant located 8 miles from pour



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☐ Field Report - Ft. Patrick Henry Dam ☐ How the Dumpcrete Hauls 8 Different Materials

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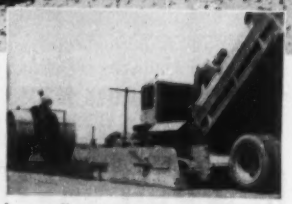
Laying highway base without hand labor — 8 tons accurately placed in 45 seconds



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costing half the price of bituminous pavers, did all work of placing 12" base of 3½" stone in 8" courses, loose lay. Averaged 45 seconds to unload trucks, spread 11' strip flush to berm, blend joint and strike off. Quickly adjustable for widths to 12½'. Larger size also available for biggest trucks.

Lays all aggregates, free-flowing bituminous mixtures or plant-mixed stabilized soil — highway and airport base, base and top of secondary roads, parking areas, drives.

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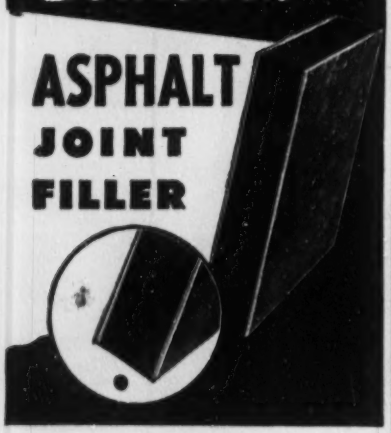

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- Highly waterproof
- Low in cost

Made in 5 thicknesses — ¼", ⅜", ½", ¾" and 1" — in any length or width to meet job specifications. Formed between two sheets of heavy asphalt saturated felt paper, which increases strength and rigidity and improves handling.

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Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

Millions of dollars

	This Week	Cumulative 31 wks 1954	1953	% chge
Federal	$22.1	$762.8	$972.9	−22
State and municipal	105.5	2,878.5	2,945.6	−2
Total public	127.6	3,641.3	3,918.5	−7
Total private	241.0	4,806.0	5,250.1	−8
U. S. total	$368.6	$8,447.3	$9,168.6	−8

Contracts by type of work

Waterworks	$6.3	$133.7	$143.3	−7
Sewerage	6.2	229.3	243.2	−6
Bridges	11.5	279.4	366.0	−24
Highways	41.4	1,077.0	1,082.0	−0.4
Earthwork, Waterways	3.2	168.1	250.6	−33
Buildings:				
Public, excl. hsg.	28.1	1,066.3	1,032.8	+3
Housg., pub.	13.6	154.8	284.9	−46
Housg., priv.	63.1	2,621.7	2,299.6	+14
Commercial	27.8	748.3	724.6	+3
Industrial	141.6	1,193.5	1,635.5	−27
Unclassified	25.8	775.2	1,106.1	−30
Total	$368.6	$8,447.3	$9,168.6	−8

NOTE: Minimum size projects included are: Waterworks and waterways $34,000; other public works $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)

	Week of July 29 1954	Cumulative 30 Wks 1954	% chge '53-'54
Corporate securities	$43.9	$1,896.8	−27
State and municipal:			
All except housing	78.0	3,346.0	+30
Housing	0.2	69.8	−67
Federal loans	1.8	75.7	+9
Federal aid	...	630.0	...
Total non-federal	$123.9	$6,018.4	+11
Federal approps.:			
In U. S.	...	1,126.0	...
Outside U. S.	...	28.4	...
Total new capital	$123.9	$7,172.9	+32

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	7/29†	642.05	308.63	134.60
	7/1	627.86	301.81	131.62
Building cost	7/29†	455.51	246.23	129.48
	7/1	444.05	240.04	126.23
Volume	July	547	222	158
	June	510	207	147

† Official ENR indexes for August 1

For additional cost index data, see Construction Daily

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: August 19, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 19th day of August 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. RONAN, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Albany, Essex, Greene, Rensselaer, Saratoga, Schenectady, Warren, Washington	R.C. 54-92	Br. S.H. 9109; Br. No. 2 S.H. 5311; Br. No. 3 S.H. 8309; Br. No. 1 S.H. 490; Br. No. 1 S.H. 285; Br. No. 2 S.H. 1521; Br. No. 2 S.H. 439; Br. S.H. 240; Br. S.H. 1172; Br. No. 1 S.H. 8485; Br. No. 1 S.H. 721; Br. P.S.C. 1177, S.H. 1224	....	Cleaning & Painting 12 Bridges	$1,600 Plans $10	$29,000
Albany	FAC 54-8	Albany City: Riverfront Arterial Highway (Cont. 1) Project U-712(5)	0.71	9" Cem. Conc. Pavt. 2 @ 24' Wide = 0.44 Mi. Misc. Work = 0.27 Mi.	$70,000 Plans $15	1,297,000
Saratoga	US-87	Locks 2, 3, 4, 5, & 6 (Barge Canal)	....	Lowering the Sills Extending the Upper Gates & Other Misc. Work	5% of Bid Plans $15	Not Published
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Montgomery	FASS 54-14	Fort Plain-St. Johnsville (CR.65) Proj. S-420(1)	0.33	Asph. Conc. Opt. Pl. Girder Br. 4 Spans 3 @ 120', 1 @ 233'	$36,000 Plans $15	652,000
DISTRICT No. 3, WILLIAM ROBINSON, District Engineer, Weigh Lock Bldg., Syracuse, N. Y.						
Onondago, Oswego, & Seneca	R.C. 54-91	Br. No. 1 S.H. 5042; Br. No. 1 S.H. 5274A Br. No. 1 S.H. 278	....	Cleaning & Painting 3 Bridges	$1,100 Plans $10	20,000
DISTRICT No. 4, E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Genesee & Monroe	O.T. 54-4	New York State Thruway—Ontario Section—Subd. 6A & 6B (Leroy Gas Station—Restaurant Site)	....	Grading, Paving & Misc. Work	$9,500 Plans $10	173,000
Ontario	O.T. 54-3	New York State Thruway—Ontario Section—Sub. 15 (Clifton Springs Gas Station—Restaurant Site)	....	Grading, Paving & Misc. Work	$12,000 Plans $10	204,000
DISTRICT No. 5, C. R. WATERS, District Engineer, State Office Building, Buffalo, N. Y.						
Erie	FAC 54-9	City of Buffalo: Fuhrmann Blvd. (High Level Bridge Apps.). Proj. U-750(6) Cont. 4	1.38	Asph. Conc.	$30,000 Plans $15	564,000
Erie	FASS 54-12	Mile Strip Road C.R. 460 Lake Shore-Lackawanna	0.90	9"-2 Crse. Cem. Conc. Pavt. = 0.31 Mi.	$13,000	232,000
	FARC 54-88	City, S.H. 5019. Proj. S-366(1)		Asph. Conc. Opt. = 0.59 Mi.	Plans $10	
Niagara	FAC 54-10	City of Lockport: Genesee Street-Walnut Street Project U-709(4)	(0.30) (Acc.) (0.32) (Hwy.)	Asp. Conc. = 0.31 Mi. Asph. Conc. Acc. = 0.26 Mi. Misc. Work = 0.05 Mi. Comp. I-Beam Br. 133.5'	$65,000 Plans $25	$1,174,000
Niagara	M 54-6	Pine St. Bridge E-232 Over Barge Canal at Lockport	....	Cleaning & Painting	$820 Plans $10	14,840
DISTRICT No. 6, J. H. THOMAS, District Engineer, State Office Building, Hornell, N. Y.						
CHEMUNG	FARC 54-86	Fassett-Southport, S.H. 1561 Proj. F-479(10)	4.44	Asph. Conc. Optional	$52,000 Plans $25	945,000
CHEMUNG	FASH 54-15	Elmira-Lowman, S.H. 5207	7.08	Asp. Conc. Opt. = 5.14 Mi.	$250,000	4,586,000
	FAC 54-11	Elmira-Horseheads Conn. Pt. 1 & 2		9" Cem. Conc. Pavt., Var. Wide = 1.71 Mi.	Plans $100	
	FARC 54-89	Elmira City: East Church St.		Misc. Work = 0.23 Mi.		
	FASH 54-16	Elmira-North Elmira Extension Horseheads-Montour Falls, S.H. 5208 Project U-221(5); U-479(11)		3 Brs., 2 Hy. Sepa., 4 Comp. I-Beam, 212.3', 202.9', 206', 156'. 1 Twin Closed Box 2 @ 20.5'		
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Lewis	FASSH 54-14	Kitts Corners-Naumburg Pt. 2 Project S-882(5)	1.17	Asp. Conc. Opt. = 1.17 Mi. I-Beam Br. 7 Spans. Total 640'	$45,000 Plans $15	826,000
DISTRICT No. 8, J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia, Dutchess, Putnam, Ulster	R.C. 54-90	Br. No. 1 S.H. 827; Br. No. 3 S.H. 567; Br. No. 1 S.H. 5150; Br. No. 1 S.H. 5549; Br. No. 2 S.H. 5098; Br. No. 2 S.H. 5722; Br. No. 3 S.H. 5722; Br. B-1 S.H. 5705	....	Cleaning & Painting 8 Bridges	$1,000 Plans $10	18,000
Westchester	TSP 54-2	Taconic State Parkway (Hawthorne Traffic Circle)	....	Installing Electrical Lighting Facilities	$450 Plans $10	8,000
Columbia	TSP 54-3	Taconic State Parkway Sect. 9B Pt. 2 (W. Taghkanic-	10.70	Grading, Drainage and Structure 7.96 Mi. Asph.	$175,000	3,043,000
	RC 54-93	Martindale) Hollowville-Craryville S.H. 763		Con. Opt. = 0.20 Mi. Cal. Chl. Treated Gravel = 1.92 Mi. Cem. Conc. Pavt. = 0.57 Mi. Misc. Work = 0.05 Mi. Br. I-Beam—2 Spans 67.5' Ea. Hwy. Sep.-I-Beam—3 Spans 24.5', 53.25', 42.5', Hwy. Sep., Rigid Fr.—2 Spans 36.33' Each	Plans $100	
Rockland & Westchester	H.T. 54-1	New York State Thruway—Hudson Section—Sub. 9B (Tappan Zee Bridge & Approaches)	3.39	Electrical Facilities	$45,000 Plans $15	808,000
Rockland & Westchester	H.T. 54-2	New York State Thruway—Hudson Section—Sub. 9B (Tappan Zee Bridge)	3.00	Cem. Conc. Pavt. of Br. Deck Including Curbs & Walls = 2.96 Mi. Misc. Work = 0.04 Mi.	$225,000 Plans $50	4,080,000
Westchester	H.T. 54-3	New York State Thruway—Hudson Section—Sub. 9A (Tappan Zee Bridge—Tarrytown Approach; Access Ramps & Parking Lot)	1.81	9" Cem. Conc. Pavt. 2 @ 37' Var. Wide = 1.72 Mi. Asph. Conc. Opt. = 0.09 Mi.	$35,000 Plans $15	617,000
DISTRICT No. 10, M. E. GOUL, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.						
Nassau	FASS 54-13	Peninsula Boulevard Cont. 3 Ocean Ave. Project S-319(3); S-395(1)	1.38	Asp. Conc. Optional Pedest. Overpass 137' Cont. Girder	$62,000 Plans $15	1,137,000
Suffolk	SMSP 54-2	Sunken Meadow Spur Parkway Cont. 4	(1.16)	Grad. & Drainage = 0.61 Mi. 9" Cem. Conc. Pavt.	$100,000	1,938,000
	R.C. 54-87	Smithtown-Fort Salonga Pt. 2 S.H. 1291	(Acc.) (1.25) (Hwy.)	44' Wide = 0.28 Mi. Asph. Conc. Opt. = 1.52 Mi. 5 Hwy. Seps. Rigid Frs. 66.7', 66.1', 70.1', 84.1' & 46.7'. 1 RR Sep. Comp. I-Beam 105.1'	Plans $50	

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: August 24, 1954

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO (H. E. P. C.)

ST. LAWRENCE POWER PROJECT
TENDERS FOR THE CONSTRUCTION OF POWERHOUSE COFFERDAMS AND THE DEWATERING OF THE POWERHOUSE SITE

SEALED TENDERS, in triplicate, addressed to the undersigned and clearly marked "Tender for Construction of Cofferdams A1 and C1 and the Dewatering of Powerhouse Site—St. Lawrence Power Project," will be received up to 4:30 o'clock p.m., Eastern Daylight Saving Time,

TUESDAY, AUGUST 24, 1954

for the above-mentioned construction, in the International Rapids section of the St. Lawrence River, approximately two miles west of Cornwall, Ontario.

The work will consist of the construction of Cofferdam A1, a rock and earth fill dam approximately 500 feet long; the construction of Cofferdam C1, to be built either of rock-filled timber cribs with steel sheet pile facing, or of steel sheet pile cells with earth fill, approximately 4,500 feet long; and the dewatering of the powerhouse site between the Cofferdams.

Copies of Tendering Documents and Drawings may be obtained on and after July 27, 1954, at the office of the Director of Supply H.E.P.C. of Ontario, 620 University Avenue, Toronto 2, Ontario, on payment of $100.00 per set, which sum will be refunded upon the return of each complete set of drawings and documents in good condition within 14 days after award of the contract. Tendering Documents and Drawings may be inspected at the above location, and at the offices of the following: The Commission's Field Office, Mille Roche, Ont.; New York State Power Authority, 270 Broadway, New York 7, N. Y.; Sanderson and Porter, 52 William Street, New York 5, N. Y.; Uhl, Hall and Rich, 230 Congress Street, Boston 10, Mass.

Each tender must be accompanied by a certified cheque for the sum of One Hundred Thousand Dollars ($100,000.00). Provisions as to the return of the cheque appear in the Tendering Documents.

The successful tenderer will be required to furnish a performance bond, in the form approved by the Commission, and issued by a bonding company licensed as such by the Province of Ontario, for One Hundred per cent (100%) of the total amount of the contract.

The lowest or any tender will not necessarily be accepted.

Robert H. Saunders, C.B.E., Q.C.,
Chairman and Members of The
Hydro-Electric Power Commission of
Ontario, 620 University Avenue,
Toronto 2, Ontario.

Bids: August 12, 1954

Construction of Viaduct Substructure

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey
PHILADELPHIA VIADUCT SUBSTRUCTURE
FROM PHILADELPHIA ANCHORAGE TO SECOND STREET
CONTRACT NO. P-2

Sealed bids will be received for the construction of the Viaduct Substructure for the Philadelphia Approaches from the Philadelphia Anchorage to Second Street, new bridge, Philadelphia, Pennsylvania, to Gloucester, New Jersey, known as Contract No. P-2, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey, until 2:00 P.M. (Eastern Daylight Time), August 12, 1954, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $100,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

Bids: August 12, 1954

Contract No. P-4

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

RETAINING WALL SUPPORTING B. & O. RAILROAD BIGLER STREET YARD TRACKS
PHILADELPHIA, PENNSYLVANIA

Sealed bids will be received for a Retaining Wall Supporting the B. & O. Railroad Bigler Street Yard Tracks, Philadelphia Approaches to new Bridge Connecting Philidalphia, Pennsylvania and Gloucester, New Jersey, known as Contract No. P-4, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:00 P.M., (Eastern Daylight Time), August 12, 1954 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $5,000.00 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

Bids: September 2, 1954

Construction of Water Treatment Plant

TOWN OF BILLERICA, MASSACHUSETTS
BOARD OF PUBLIC WORKS

Sealed bids for construction of a water-treatment plant will be received by the Board of Public Works, Billerica, Massachusetts, at their office in the Town Hall until 8 P.M. Daylight Saving Time, September 2, 1954, and at that time and place publicly opened and read.

The treatment works consist of an intake pumping station; pretreatment works, including chlorine contact chamber, flocculation chamber and settling basin; a filtration building containing four high-rate filters, chemical dosing equipment and all other facilities required in conjunction therewith; a clearwell beneath the filtration building; and high-lift pumps in the filtration building.

All materials and equipment are to be furnished by the Contractor.

Sub-bids are to be submitted for the following work: Plumbing, Heating and Ventilating, Roofing and Sheet Metal, and Electrical.

Plans and specifications may be secured from the Consulting Engineers, Camp, Dresser & McKee, 6 Beacon Street, Boston, Massachusetts, upon the payment of Twenty-five Dollars ($25.00) of which fifteen dollars will be refunded if the documents are returned in good condition within two weeks after bids are received. Plans available for examination at Dodge Reports, Gainey's and Engineer's office.

Each proposal must be accompanied by bid security consisting of a certified check in the amount of Twenty-five Thousand Dollars ($25,000) payable to the Town of Billerica, Massachusetts. All checks except those of the three lowest responsible and eligible bidders will be returned within two days, Saturdays, Sundays and holidays excluded after the opening of proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A bond in the full amount of the contract will be required of the successful bidder to secure the faithful performance of the contract and for the payment of all persons performing labor or furnishing materials in connection therewith.

The minimum wage rates to be paid by the Contractor on this work shall be as determined by the Massachusetts Department of Labor and Industries. A copy of the schedule of wage rates is attached to the contract documents. Bids must be filed in accordance with the provisions of Chapter 149, Sections 44A to D inclusive, of the General Laws. The Town of Billerica reserves the right to reject any or all proposals or to accept any bid if deemed to be in the best interest of the Town to do so.

BOARD OF PUBLIC WORKS
BILLERICA WATER DEPARTMENT
BILLERICA, MASSACHUETTS

U. S. Government

Sealed bids in triplicate for construction (Except Elevators) of the Administration Building, Howard University, Washington, D. C., will be received until 2:00 P.M. EDST on August 26, 1954 in Rm. 7100 General Services Regional Office Bldg., 7th & D Sts., S. W., Washington, D. C., and then publicly opened in Rm. 7100. Bidding material may be obtained from Public Buildings Service, Rm. 1304 General Services Bldg., 19th & F Sts., N. W., Washington, D. C. Executive 3-4900, Br. 2397.

Official Proposals Columns

of

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. . . and used regularly for over 50 years by government, state, county and municipal departments for advertising bids.

Official Proposal Division

ENGINEERING NEWS RECORD

Address: New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: August 19, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 19th day of August 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 5, C. R. WATERS, District Engineer, State Office Building, Buffalo, N. Y.						
Chautauqua	E.T. 54-1 S.T. 54-2 R.C. 54-94	N. Y. State Thruway—Erie Section—Sub. 4 (Roberts Road—Route 20); 7 Misc. Sec. Cross Roads and Fredonia-Silver Creek Pt. 3A, S.H. 8038	6.54 Thy. (2.92 Acc.)	9" Two Crse. Cem. Conc. Pavt. 2 @ 25' Var. Wide = 6.84 Mi.; Asp. Conc. Opt. = 0.12 Mi.; Bit. Mac. Ty. 1 = 2.21 Mi.; Misc. Work = 0.29 Mi.; 5 Hy. Seps. Comp. I-Beams 247.2', 243', 248.1', 231.6', and 239.1'; 2 Brs. Twin Boxes 28' & 28'; 1 RR Sep. Plate Girder 278'.	$250,000 Plans $100	$4,637,000
Chautauqua and Erie	E.T. 54-2 S.T. 54-3 R.C. 54-95	N. Y. State Thruway—Erie Section—Sub. 5 (Route 20—Four Mile Level Rd.); 4 Misc. Sec. Cross Roads and Silver Creek-Forestville, S.H. 149; Marg. Rds. A, B and C	6.35 Thy (3.44 Acc.)	8" & 9" Two Crse Cem. Conc. Pavt. 2 @ 25' Var. Wide = 6.80 Mi.; Asp. Conc. Opt. = 1.48 Mi.; Found. Crse. Grav. = 1.30 Mi.; Misc. Work = 0.21 Mi.; 3 Hy. Seps. Comp. I-Beams 153.7', 216' and 229.6'; 1 Hy. Sep. Closed Box 29'; 2 Brs. Conc. Arch & Trestle 285.7' and 256.8'; 1 Br. Deck Truss 664'	$350,000 Plans $100	6,407,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

The Hydro-Electric Power Commission of Ontario (H. E. P. C.)

ST. LAWRENCE POWER PROJECT
TENDERS FOR THE RELOCATION OF PROVINCIAL HIGHWAY NO. 2—CORNWALL TO MOULINETTE

Concerning the Notice for Sealed Tenders for the Relocation of Provincial Highway No. 2, Cornwall to Moulinette, which appeared in the Press on or about July 9, 1954, notice is hereby given that the aforesaid call for tenders is cancelled in accordance with advice already issued by wire to those who have obtained specifications. A Notice covering the Calling of Tenders for this highway relocation will be issued by the Ontario Department of Highways on or about July 26, 1954.

Robert H. Saunders, C.B.E., Q.C.,
Chairman, and Members of The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario.

Bids: August 19, 1954

Integrated Sewerage System

FAIRFAX COUNTY, VIRGINIA

Sealed bids will be received by the Board of County Supervisors of Fairfax County, Virginia, at the Office of the Sanitary Engineer, County of Fairfax, Fairfax, Virginia, until Thursday, August 19, 1954, at 2:00 o'clock, P. M. Eastern Daylight Saving Time, for the construction of:

CONTRACT NO. 25: Approximately 7,900 lineal feet of 12 to 36 inch sanitary sewers and appurtenances.

CONTRACT NO. 26: Approximately 5,200 lineal feet of 8 inch sanitary sewers and appurtenances.

CONTRACT NO. 27: Approximately 6,000 lineal feet of 8 inch sanitary sewers and appurtenances in miscellaneous extensions to existing system.

Promptly thereafter they will be publicly opened and read in the Board of County Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications, and contract documents may be examined and copies thereof may be obtained at the Office of the Sanitary Engineer, upon payment of Ten Dollars ($10.00) per set for Contract No. 25 and Five Dollars ($5.00) per set for Contracts No. 26 and 27, which amount shall not be returnable.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a Certificate of Registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

Each bid must be accompanied by cash, or by the certified check of the bidder, made payable to the Director of Finance, County of Fairfax, Virginia, or by an acceptable bidder's bond in an amount not less than Five Percentum (5%) of the amount of the total bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

COUNTY OF FAIRFAX, VIRGINIA
BY: Harry L. Hale, Sanitary Engineer
Dated: July 20, 1954

Bids: August 24, 1954

Reconditioning of Bridge

Sealed proposals will be received by the Essex-Hudson Joint Bridge Committee of the Counties of Essex and Hudson, New Jersey, on Tuesday, August 24, 1954 at 10:00 A.M. Eastern Daylight Time in Room No. 504, Hall of Records, Newark, N. J., for

RECONDITIONING OF BRIDGE STREET BRIDGE OVER THE PASSAIC RIVER BETWEEN NEWARK AND HARRISON, NEW JERSEY

in accordance with the plans and specifications prepared for the County Engineers of the Counties of Essex and Hudson in whose offices in the Hall of Records, Newark, and the Court House, Jersey City, same may be inspected and copies obtained upon payment of deposit of $25.00, cash or certified check made payable to order of County Treasurer of Essex County.

Each bid must be enclosed in a sealed envelope submitted at the time and place above specified and will be opened and read immediately thereafter. No bids will be accepted after the hour specified. Bids must be submitted on standard proposal form. There must be enclosed in bid a certified check made payable to order of County Treasurer of Essex County, or cash in an amount equal to 10% of the total amount of bid, together with a certificate from a surety company authorized to do business in New Jersey, that such company will provide the bond or bonds called for in the specifications and general provisions.

No bids will be received by mail.

The Essex-Hudson Joint Bridge Committee reserves the right to reject any or all bids and to award the contract in part or in whole if deemed to the best interests of the Counties so to do, and its action is subject in all respects to the approval of the Boards of Chosen Freeholders of the Counties of Essex and Hudson.

EDWARD J. DESMOND, Clerk
Essex-Hudson Joint Bridge Committee

Bids: October 26, 1954

Construction of Jetty

NEW PLYMOUTH HARBOUR BOARD
NEW ZEALAND

Tenders will be received until 5 p.m. on 26th October, 1954 for the construction of Moturoa Jetty in reinforced concrete approximately 1,100 feet by 90 feet. Drawings and contract documents may be inspected at the New Zealand Government Trade Commissioner's Office, Dupont Circle Building, 1346 Connecticut Avenue, N. W., Washington 6, D. C., and may be obtained from the Consulting Engineer, Mr. W. G. Morrison, 28 Buller Street, Wellington, New Zealand.

U. S. Government

St. Paul District, Corps of Engineers, U.S. Army, 1217 U.S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this office until 2:00 P.M., C.S.T., 12 August 1954, and then publicly opened for Little Willow River Diversion Channel, Aitkin Flood Diversion Project, Mississippi River, Near Aitkin, Minnesota.

Sealed proposals for the purchase, dismantling, and removal of French Canal Railroad Bridge and purchase of 300 net tons of unclassified scrap metal offered for sale by Panama Canal Company will be received by Procurement Officer, 21 West Street, New York 6, New York until 10:30 A.M. Eastern Standard Time, August 31, 1954. Bid forms and additional information available at Panama Canal Company, 21 West Street, New York 6, New York. BO-9-5380.

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: September 1, 1954

Construction of Sewage Treatment Plant

CITY OF ALEXANDRIA, VIRGINIA,
SANITATION AUTHORITY
SEWAGE TREATMENT PLANT

Sealed proposals will be received by the City of Alexandria, Virginia, Sanitation Authority at the office of the Authority, Room 201, 113 North St. Asaph Street, Alexandria, Virginia, until 2:00 P.M. Eastern Daylight Time, September 1, 1954, at which time they will be publicly opened and read aloud, and Contracts will be awarded as soon thereafter as practicable for the construction of a sewage treatment plant in the City of Alexandria, Virginia.

The work is part of the Sewage Disposal Project and is to be performed under the following Divisions. The bidders may submit a proposal for any Division, all Divisions, or any combination of Divisions, but not for any part of any Division.

Division I—General, comprises the construction of the treatment plant buildings, tanks and structures, including pile foundations, the furnishing and installation of piping and equipment, except for pumping and filtration equipment which are to be furnished under other Divisions, but are to be installed under this Division, outside piping, grading and roadways.

Division II—Pumping Equipment, comprises the furnishing, testing and delivering of two 21 M.G.D., one 10 M.G.D., and one 5 M.G.D. electric motor driven pumps and two 21 M.G.D., and one 14 M.G.D. gas engine driven pumps operating at heads varying from 15 to 40 feet. Included in this Division are the required motors, engines, and drives and supervision of the installation of the equipment.

Division III—Vacuum Filtration Equipment, comprises the furnishing, testing and delivering of two vacuum filters, each 10 feet in diameter and 10 feet long, all accessory equipment, and supervision of the installation of the equipment.

Division IV—Electrical work, comprises the furnishing and installation of all electrical controls, switchgear, wiring, conduits and lighting fixtures.

Division V—Heating and Ventilating Work, comprises the furnishing and installation of boilers, convectors, unit heaters, air conditioning equipment, piping and appurtenances.

The Instructions to Bidders, Proposal, Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the City of Alexandria, Virginia, Sanitation Authority, 113 North St. Asaph Street, Alexandria, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of these Contract Documents may be obtained upon the deposit of $25.00 for each set, to be refunded upon return of such set in good condition within 10 days after opening of proposals.

Each proposal must be accompanied by a bid bond or a certified check on a solvent bank or trust company, made payable to the City of Alexandria, Virginia, Sanitation Authority in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

Bidders must be registered as Contractors in the Commonwealth of Virginia as provided by Chapter 7 of Title 54 of the Code of Virginia of 1950.

The City of Alexandria, Virginia, Sanitation Authority reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

City of Alexandria, Virginia,
Sanitation Authority
(Signed) JAMES J. CORBALIS, JR.
Engineer-Director
Dated: July 21, 1954
Alexandria, Virginia

Bids: September 1, 1954

Construction of Intercepting & Trunk Sewers

CITY OF ALEXANDRIA, VIRGINIA
SANITATION AUTHORITY
INTERCEPTING AND TRUNK SEWERS

Sealed proposals will be received by the City of Alexandria, Virginia, Sanitation Authority at the office of the Authority, Room 201, 113 North St. Asaph Street, Alexandria, Virginia, until 2:00 P.M., Eastern Daylight Time, SEP. 1, 1954, at which time they will be publicly opened and read aloud, and Contracts will be awarded as soon thereafter as practicable for the construction of intercepting and trunk sewers in the City of Alexandria, Virginia.

The work is part of the Sewage Disposal Project and is to be performed under the following Divisions. The bidders may submit a proposal for any Division, all Divisions, or any combination of Divisions, but not for any part of any Division.

Division A—Potomac Interceptor, comprises the construction of approximately 8,490 linear feet of 42 inch, 1,650 of 36 inch and 2,370 feet of 18 inch concrete pipe sewer together with all connecting sewers, special crossings, manholes, house connections, and other structures as shown, specified and directed.

Division B—Commonwealth Interceptor, comprises the construction of approximately 1,250 feet of 72 inch, 550 linear feet of 42 inch, 5,050 linear feet of 36 inch, 1,530 linear feet of 33 inch, 3,980 linear feet of 30 inch, 1,950 linear feet of 18 inch, 1,304 feet of 15 inch concrete pipe sewer, 4,620 linear feet of 24 inch reinforced concrete force main and 335 linear feet of 8 inch cast iron force main, together with all connecting sewers, inverted siphons, special crossings, manholes, and other structures as shown, specified and directed.

Division C—Holmes Run Trunk Sewer, Section I, comprises the construction of approximately 8,660 linear feet of 60 inch, and 6,990 linear feet of 54 inch concrete pipe sewer, together with all connecting sewers, inverted siphons, special crossings, manholes, diversion structures, metering stations, and other structures as shown, specified and directed.

Division D—Holmes Run Trunk Sewer, Section II, comprises the construction of approximately 6,200 linear feet of 36 inch 1,770 linear feet of 33 inch and 4,090 linear feet of 30 inch concrete pipe sewer, together with all connecting sewers, inverted siphons, special crossings, manholes, diversion structures, metering stations, and other structures as shown, specified and directed.

The Instructions to Bidders, Proposal, Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the City of Alexandria, Virginia, Sanitation Authority, 113 North St. Asaph Street, Alexandria, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of these Contract Documents may be obtained upon the deposit of $25.00 for each set, to be refunded upon return of such set in good condition within 10 days after opening of proposals.

Each proposal must be accompanied by a bid bond or a certified check on a solvent bank or trust company, made payable to the City of Alexandria, Virginia, Sanitation Authority in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

Bidders must be registered as Contractors in the Commonwealth of Virginia as provided by Chapter 7 of Title 54 of the Code of Virginia of 1950.

The City of Alexandria, Virginia, Sanitation Authority reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

City of Alexandria, Virginia,
Sanitation Authority
(Signed) James J. Corbalis, Jr.
Engineer-Director
Dated: JUL. 21, 1954
Alexandria, Virginia

Bids: September 1, 1954

Construction of Pumping Stations

CITY OF ALEXANDRIA, VIRGINIA,
SANITATION AUTHORITY
PUMPING STATIONS

Sealed proposals will be received by the City of Alexandria, Virginia, Sanitation Authority at the office of the Authority, Room 201, 113 North St. Asaph Street, Alexandria, Virginia, until 2:00 P.M. Eastern Daylight Time, September 1, 1954, at which time they will be publicly opened and read aloud, and Contracts will be awarded as soon thereafter as practicable for the construction of sewage pumping stations in the City of Alexandria, Virginia.

The work is part of the Sewage Disposal Project and is to be performed under Division E. The bidders may submit a proposal for the complete Division, but not for any part of the Division.

Division E, Pumping Stations, comprises the construction of the River Road Pumping Station and the Four Mile Run Pumping Station. The work includes the substructures, superstructures, the furnishing and installation of the pumping equipment, electrical work, outside piping, grading and roadways. The River Road Pumping Station has an installed pumping capacity of 1.2 million gallons a day and the Four Mile Run Pumping Station has an installed pumping capacity of 18.0 million gallons a day.

The Instructions to Bidders, Proposal, Form of Bid Bond, Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the City of Alexandria, Virginia, Sanitation Authority, 113 North St. Asaph Street, Alexandria, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of these Contract Documents may be obtained upon the deposit of $25.00 for each set, to be refunded upon return of such set in good condition within 10 days after opening of proposals.

Each proposal must be accompanied by a bid bond or a certified check on a solvent bank or trust company, made payable to the City of Alexandria, Virginia, Sanitation Authority in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

Bidders must be registered as Contractors in the Commonwealth of Virginia as provided by Chapter 7 of Title 54 of the Code of Virginia of 1950.

The City of Alexandria, Virginia, Sanitation Authority reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

City of Alexandria, Virginia,
Sanitation Authority
(Signed) JAMES J. CORBALIS, JR.
Engineer-Director
Dated: July 21, 1954
Alexandria, Virginia

U. S. Government

Department of Commerce, Bureau of Public Roads, July 21, 1954. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., AUGUST 24, 1954, for Project 1D12, Colonial Parkway, James City County, Virginia. Reinforced Concrete Trestle over Powhatan Creek. Length: 0.137 miles. The approximate quantities of the more important items are: 1,660 cu. yd. Cement Concrete, 300,000 lb. Reinforcing Steel, and 10,000 lin. ft. Precast Concrete Piling. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Speiman, Division Engineer.

BRIDGE ENGINEERS AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS "OPPORTUNITIES" EQUIPMENT: USED OR RESALE

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$1.80 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

POSITION WANTED undisplayed rate is one-half of above rate, payable in advance.

Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for August 19th issue, closing August 9th

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

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The Advertising rate $20.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch is measured ⅞ inch vertically on one col. 3 cols.—30 inches to a page. E.N.R.

WANTED: ASSOCIATE PLANNER

Salary range $450-525 a month. Annual increases are automatic. Applicants should have training and experience in design. Applications will be accepted until the needs of the service are filled. Write Personnel Division, City Hall, Madison 3, Wis.

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 44 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
659 Brisbane Bldg. Buffalo 3, N. Y.

OPPORTUNITY
For an energetic engineer with sales personality

25 to 35 years of age, for sales work with company operating on nationwide basis furnishing Concrete Form Engineering and Rental Service. General construction experience and some Engineering college training essential. Give full details in first letter to

R. P. Wilkinson, Economy Forms Corp.
4301 N. E. 14th St., Des Moines 13, Iowa

ENGINEERS
Foreign Service

Graduate Chemical, Mechanical, Electrical & Construction Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of construction, estimating materials and cost control, planning and refinery process work. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

Arabian American Oil Company
505 Park Avenue, New York 22, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED: Instructor of Engineering Drawing and descriptive geometry. Salary up to $4,700 for 9 month period and assistant professorship for qualified person. M. E. graduate preferred. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

MALE HELP Wanted: Experienced Structural Draftsman. Personnel—Box 1087, Charlotte 1, N. C.

CITY ENGINEER—City of Montebello, California (pop. 25,000) invites applications. California registration with one year of experience in municipal government in administrative capacity. Salary range—$629-703. Maximum age 65. Apply by September 1, 1954 to Personnel Officer, City Hall, 140 North Sixth Street, Montebello, California.

HELP WANTED—Construction takeoff man for general contractor's office—preferably with professional quantity survey experience for concrete and carpentry trades. Recent engineering or architectural graduate considered. Write to Ajax Construction Co., Inc., 1107 19th Street, N. W., Washington, D. C. Salary open.

CONSTRUCTION SUPERINTENDENT—Experience in poured Gypsum roof decks for work throughout middle west by old established subcontractor. Reply giving age and experience. Good opportunity for aggressive man. P-3401, Engineering News-Record.

WANTED: CONSTRUCTION Engineer to aid in construction of shopping centers. Age preference, 30 to 45 years. Must be able to estimate, purchase, expedite and coordinate construction work. Good opportunity for person to work into permanent position with an established and growing construction company. P-3323, Engineering News-Record.

FIELD SUPERINTENDENT, experienced, for large scale seeding work in several eastern states. Permanent. Steve Brody Inc., Lynbrook, N. Y.

JUNIOR, ASSISTANT and senior engineers for City of Rochester, N. Y. Salaries $3972 to $6930. Write Civil Service Commission, 242 Main St. W., Rochester 14. Closing date for applications August 26th.

GENERAL CONTRACTOR now in process of expanding field supervisory force on aluminum reduction plant located in Northwest section of country. Considering applications for general superintendent, area and assistant area superintendents, mechanical superintendents and office engineer. Submit complete details including age, education, experience, references, availability, and salary expected. P-3484, Engineering News-Record.

POSITIONS VACANT

EXPERIENCED ESTIMATOR, fully qualified to handle sub-contracts, job materials; details and shop drawings, progressive Bronx Construction company, specializing in schools, public works, and industrial work. Reply in own writing giving full particulars. P-3505, Engineering News-Record.

MALE HELP wanted engineer, young, aggressive, for production in concrete pipe plant in New York area. Hard work, long hours, opportunity, permanent position. State age, experience, salary desired, available September first. P-3504, Engineering News-Record.

CONCRETE PIPE manufacturer has opening for salesman to sell and promote the use of concrete pipe. Reply giving age, education, experience, salary desired. P-3503, Engineering News-Record.

WANTED, ENGINEER, experienced in design and supervision of water works & sewage treatment plants for small municipalities. Permanent position with municipal engineering consultants. Location is attractive town in western Pennsylvania, easy access to Pittsburgh. Include education, experience, reference and salary expected in application letter. P-3492, Engineering News-Record.

ENGINEERS, COMPETENT and experienced in design and supervision of construction and as resident engineers on water works, sewer systems, sewage and water treatment. State experience, when available, salary requirements, references. P-3452, Engineering News-Record.

WANTED—AN engineer qualified to make surveys and design water and sewer systems or treatment plants. Location—Southeast Pennsylvania. State experience and salary desired in first reply. P-3458, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEER — Rochester, New York and Pittsburgh, Pennsylvania territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete traning program. Salary and bonus. RW-2289, Engineering News-Record.

EXPERIENCED DIRT moving equipment salesman wanted—as district representative in Middle Atlantic territory by manufacturer of both capital items and wearing parts. All sales through established dealer organization. Give complete resume of experience, qualifications, salary requirements and availability. SW-3429, Engineering News-Record.

(Continued on page 82)

HIGHWAY and BRIDGE DESIGNERS

Experience required in highway or structural design. Excellent opportunity for Engineers qualified to design modern expressways and bridges. Location in Harrisburg, Penna. with excellent living conditions. Include experience and salary requirements in first letter.

GANNETT FLEMING CORDDRY & CARPENTER, Inc.
P. O. Box 366 Harrisburg, Pennsylvania

SUPERINTENDENT

Wanted in East—must have references that he has recently supervised for Contractors, large Bridge and Highway Contracts and knows costs. Give age, experience, salary required and availability.

P-3404, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

Designing engineers, highways-thruways, bridges, airfields, drainage, sanitation, hydraulic, soil mechanics, structural.

Draftsmen, designers, to Project Manager.

Submit resume

SEELYE STEVENSON VALUE & KNECHT
101 Park Ave. New York 17, N. Y.

ESTIMATOR WANTED

Must have recent experience in all phases of heavy construction, for Philadelphia. Reply by giving age, reference, salary desired and when available.

P-3403, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SELLING OPPORTUNITY OFFERED

(Continued from page 81)

WANTED EXPERIENCED dirt moving equipment salesman as district representative in Missouri, Kansas, Nebraska, Iowa, Arkansas and Oklahoma territories by manufacturer of both capital items and wearing parts. All sales through established dealer organization. Please give complete resume of experience, qualifications, salary requirements and availability. SW-3430, Engineering News-Record.

SALES ENGINEER for fabricator of reinforcing bars, preferably with following among contractors in metropolitan New York. To sell for old established reinforcing bar fabricator having New York metropolitan area office and plant with complete line of reinforcing steel products. Compensation drawing against commission. SW-3502, Engineering News-Record.

EMPLOYMENT SERVICE

OVERSEAS PROJECTS Guide to most active constructors-engineers, oil co's., gov't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int., GPO Box 126E, NY 1, NY.

EMPLOYMENT AGENCIES

WANTED ENGINEERS, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E., and Industrial, also Teachers and Chemists, Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

CHIEF STRUCTURAL Engineer, 30 years, experience steel and reinforced concrete; 20 years design supervision. PW-3263, Engineering News-Record.

GENERAL OR Plant Manager—20 years experience in fabrication of steel for buildings, bridges, and special structures. Experience includes sales, engineering and supervision of engineering, production and field erection forces and purchasing. Excellent production record. Reg. Prof. Engr. Age 38. Desire position with progressive company in this field. PW-3239, Engineering News-Record.

CHIEF ESTIMATOR—35 years practical experience, field and office, engineering education, progressive and receptive to new ideas, specializing in reinforced concrete masonry structures, mostly buildings, and with the ability, knowledge of costs and judgment necessary to meet present competition and stay in business. Expect to retire in five years and will train replacement in costs and business management. Now employed but wish to make change in locality with an aggressive responsible contractor. PW-3288, Engineering News-Record.

PROJECT MANAGER or Contractor's executive available. Broad experience heavy construction and buildings. Thorough organizer. Sound knowledge of field supervision, estimating, cost control, purchasing, subcontracts. New York preferred. PW-2942, Engineering News-Record.

CONSTRUCTION OR Sales Engr. 29 B.S.C.E. 5 yrs. experience on Municipal work, Sewerage treatment, water treatment, earth fill dams, highways and pipeline work. 2 years of administrative work. 1 year of sales management work. Only responsible positions considered. PW-3337, Engineering News-Record.

PROJECT MANAGER - SUPERINTENDENT: C.E. 20 yrs. experience heavy industrial, pipeline, gas compressor stations, highways and hydro-electric projects. Aggressive growth individual and a go-getter. Believe in finishing projects on time. Presently employed. Available Sept. 1st. Interested primarily in foreign assignment. Excellent references. Working knowledge Spanish and Turkish. PW-3294, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT Mechanical and Structural Engineer, can take full charge of project including all related trades on heavy or light construction. Want responsible position with general contractor or architectural firm. Prefer south or southwest. Very good references. PW-3206, Engineering News-Record.

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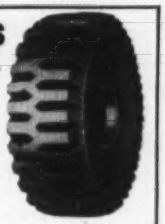

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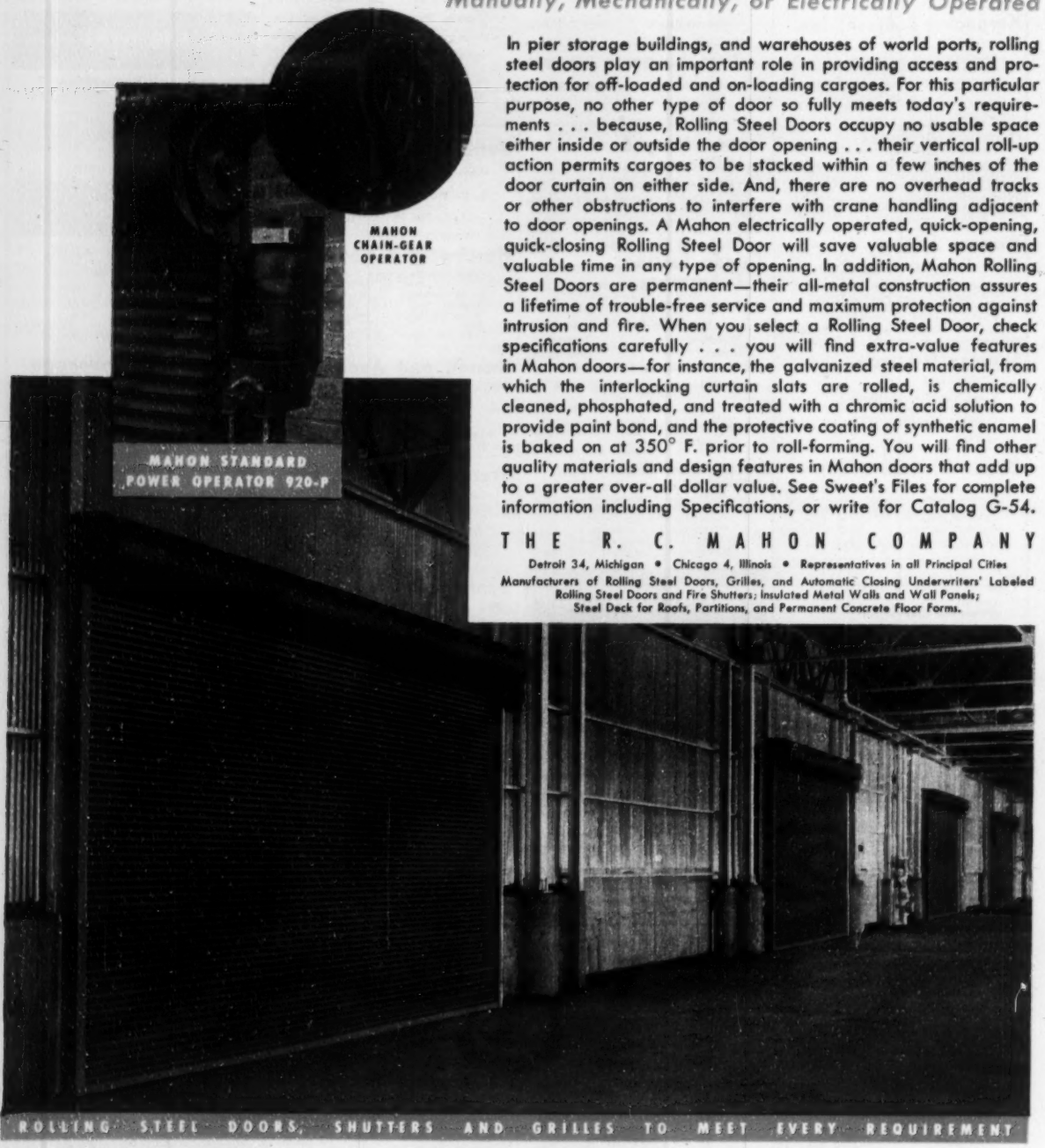

In pier storage buildings, and warehouses of world ports, rolling steel doors play an important role in providing access and protection for off-loaded and on-loading cargoes. For this particular purpose, no other type of door so fully meets today's requirements . . . because, Rolling Steel Doors occupy no usable space either inside or outside the door opening . . . their vertical roll-up action permits cargoes to be stacked within a few inches of the door curtain on either side. And, there are no overhead tracks or other obstructions to interfere with crane handling adjacent to door openings. A Mahon electrically operated, quick-opening, quick-closing Rolling Steel Door will save valuable space and valuable time in any type of opening. In addition, Mahon Rolling Steel Doors are permanent—their all-metal construction assures a lifetime of trouble-free service and maximum protection against intrusion and fire. When you select a Rolling Steel Door, check specifications carefully . . . you will find extra-value features in Mahon doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. You will find other quality materials and design features in Mahon doors that add up to a greater over-all dollar value. See Sweet's Files for complete information including Specifications, or write for Catalog G-54.

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Four of Thirty Mahon Rolling Steel Doors Installed in the Napoleon Avenue Wharf Shed built by the Board of Harbor Commissioners, Port of New Orleans, Louisiana.

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Bituminous mixer is compact, portable

Portability appears to have been the guideword for Cedar Rapids engineers when they turned out the new Model CM bituminous mixing unit. The conveyor folds back over the mixer and the bucket elevator is removed as a single unit. The mixer can then be hauled away on its own rubber-tired wheels.

Although the official capacity rating through the complete range of mixing jobs is 20 to 40 tons, Model CM units are reported to have produced as high as 56 tons per hour of a coarse mix and will consistently produce 45 to 46 tons per hour of a coarse-type specification mix such as used for base

(*Continued on page 92*)

Mechanical soil conditioner aerates

A new combination aerating and renovating machine has been designed for getting air, moisture and fertilizer down to the roots of grass areas. The equipment is also said to aid in controlling the acid mat that builds up on Bermuda, Creeping Bent and other running stem turfs.

Called the Renovataire, the machine has 22-in. wheels with saw-toothed knives, adjustable for penetrating depth through 2, 3 and 4 in. The knives are shaped to perform a definite slicing action in controlling long stem grasses and cutting a number of slits 2 in. long in the turf without tearing the surface.

A hydraulic lift raises all aerating wheels off the ground in order to permit easier transporting of the unit over paved surfaces. Soilaire Industries, 1200 Second Ave., S. Minneapolis 3, Minn.

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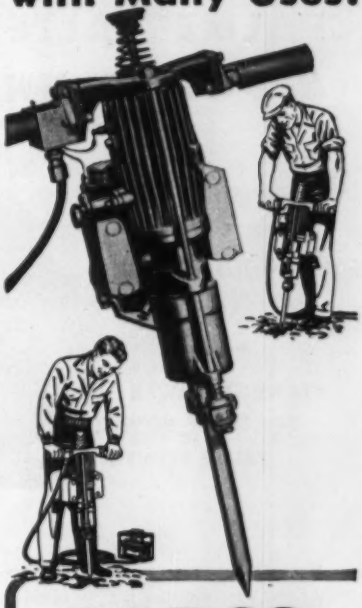

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course. With a high percentage of fines, a capacity of 35 tons per hour has been average.

In the operation shown, material is fed into the drier from a two-compartment hopper equipped with reciprocating feeder. Adjustable bin gates proportion the aggregate according to specifications. The independent enclosed bucket elevator delivers multiple hot-mix aggregate to the twin-shaft, continuous-type Model CM mixer where it is mixed to specifications with a constant flow of bitumen from the weight calibrated metering pump on the mixing unit.

The bucket elevator can also be arranged for cold mix applications or to use a weight calibrated apron feeder on the mixing unit for single aggregate hot mix. The finished product in all cases is delivered to trucks by belt conveyor. However, if the unit is to be used as a stationary installation, the conveyor can be dispensed with and the material discharged directly into trucks.

For a high type of mix, a gradation unit can be used for screening the aggregate into various sizes and to assure a steady flow of accurately proportioned material entering the mixing unit.

Traveling dimensions of the unit with conveyor attached are 10 ft 4 in. high and 19 ft long. Without the conveyor the dimensions are cut to 9 ft 10 in. and 14½ ft, respectively. Width in both cases is 8 ft.

Power is supplied by a 40-hp gasoline or diesel engine turning at 1,500 rpm or a 30-hp electric motor operating at 1,800 rpm.

The mixer weighs approximately 7,900 lb with power but without delivery conveyor, bucket elevator or apron feeder. Weights of these units are: conveyor, 1,750 lb; elevator, 1,900 lb; feeder 1,800 lb. IOWA MFG. CO., CEDAR RAPIDS, IOWA.

World's largest ditcher goes on the drawing board

Said to be the largest ditching machine in the world, the Gar Wood Buckeye Model 435 is now being designed. The unit will be capable of excavating a ditch 15 ft wide and 30 ft deep and is planned for use in excavating intercepting and outfall sewer trenches, water diversion aqueducts and other large ditches.

Tentative price of the unit is about $100,000—approximately half the cost of excavating equipment now used for such large jobs.

Approximate overall dimensions of the unit are: length, 81 ft; height, 15

ft; width, 12 ft, excluding the dirt discharge conveyor. Estimated weight will be 65 tons.

The machine will be crawler mounted at the digging end and supported by rubber-tired wheels at the front end. Two diesel engines with torque converters will supply power to the crawlers and the digging drive. Hydraulic steering will be another feature. GAR WOOD INDUSTRIES, WAYNE, MICH.

Prices of new mobile towers begin at $5,715

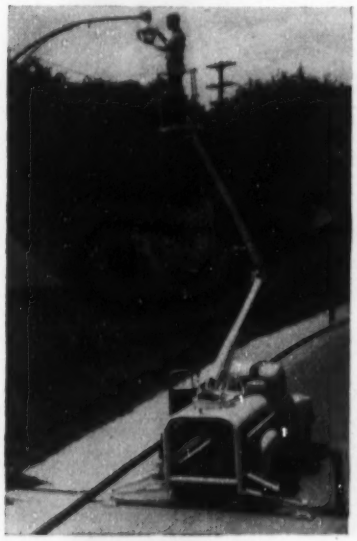
With prices beginning at $5,715 the new series of Hi-Ranger extensible personnel towers look like the lowest cost mobile units on the market today. The unit bearing this price tag is designated the Series 3 and is designed to place a worker at a maximum platform height of 32 ft. A slightly higher priced model, Series 4, will lift to 40 ft.

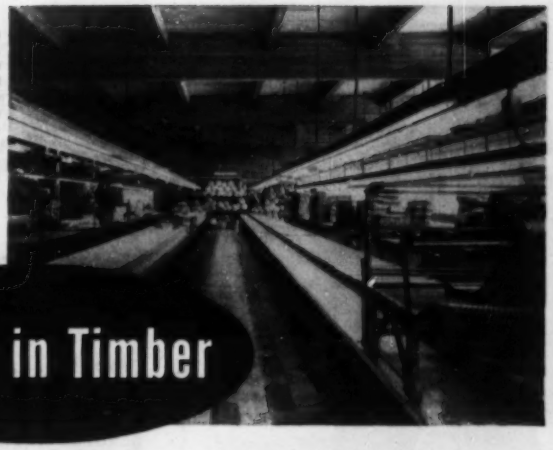
According to the manufacturer, the smaller model will mount on any ¾-ton or larger pickup-type or utility truck and the Series 4 can be similarly mounted beginning with ½-ton sizes. Regardless of the vehicle chosen, no major alteration is required before the units can be installed. Further, the installation rarely affects normal traffic speeds of the vehicles, it is claimed.

Booms of the new series are constructed of seamless steel tubing, with all power furnished by a hydraulic system run by the vehicle's engine. Enclosed hydraulic rams supply moving force for the booms.

Retractable hydraulic outriggers provide stability and make possible

(Continued on page 94)





New factory of Argo Knitting Mills, Schuylkill Haven, Pa. Beams are spaced 20 feet on centers, with purlins spaced at 6 feet. Two-inch tongue-and-groove sheathing and built-up roofing complete the roof assembly. Hewitt Associates, Inc. of New York City were the designing engineers and general contractors.

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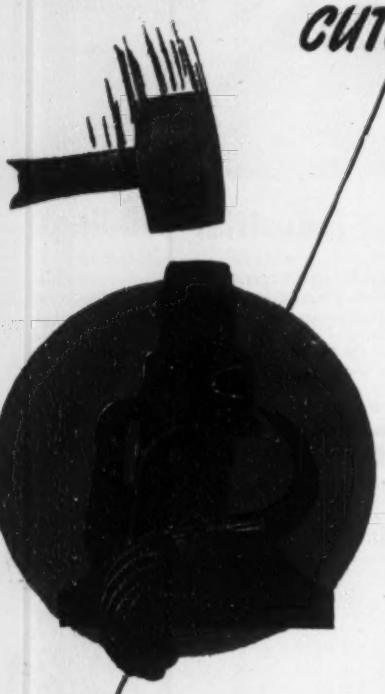

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platform weight capacities of 250 lb for the Series 3 and 300 lb for the series 4.

A safety factor of 600 per cent is incorporated in all structural elements, and where electrical work is to be done, the platforms and upper booms can be insulated with glass fiber. Mobile Aerial Towers, Inc., 1405 N. Clinton St., Ft. Wayne, Ind.

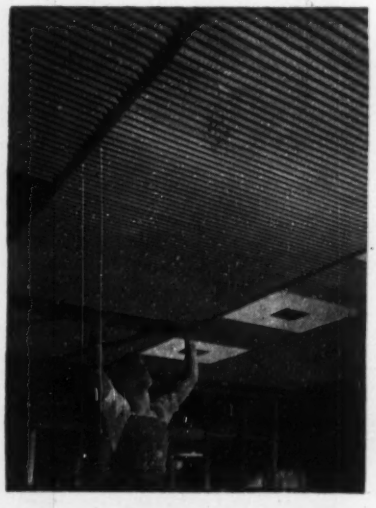
Perforated metal panels have acoustical qualities

Corrutone is the name given a new sound control product—a corrugated, enameled perforated metal panel system. Official AMA tests reveal that a noise reduction coefficient as high as 0.90 can be obtained with the new product at 1,000 cycles.

Total and easy accessibility behind the tile is reported possible by simply sliding any one of the 24x24 in. or 24x48-in. panels forward or backward.

The new sound control assembly is attached to a 1½-in. channel grillage on Z-splines with a specially-developed Z-spline clip attachment. The Z-spline is 1¾ in. in depth and holds the panels in place, yet permits them to be moved by gently pressing the tile upwards, then either forward or backward as desired. Above the panels a specially designed mineral wool pad contributes to the sound absorption obtained.

Although 1½-in. steel channels are recommended for furring or framing down from the ceiling, 2 x 3-in. wood strips (maximum spacing 5 in. o.c.) may be used, thus eliminating the need for hanger wires and the steel carrying channels. U. S. Gypsum Co., Dept. 136, 300 W. Adams St., Chicago, Ill.



PUBLICATIONS

Lighting—A new handbook "Lighting Shopping Centers" contains 64 layout plans and numerous diagrams. A section on lighting fundamentals explains the manner of determining lighting requirements. Exteriors are treated as well as interiors, with special attention paid to parking lots, service yards and common areas. HOLOPHANE CO., INC., 342 MADISON AVE., NEW YORK 17, N. Y.

Aluminum curtain wall—Architectural use of aluminum as an exterior wall facing material is detailed in drawings now being made available to architects. These drawings, which illustrate achievements in recent construction with aluminum, were obtained directly from the originating architects and sub-contractors who fabricated the metal sections. The shop or erection drawings show how the various types of aluminum panels are installed. The first four drawings available are Fort Couch School, Pittsburgh; Tishman Building, New York City; Bradford Hospital, Bradford, Pa.; and the Wyatt Building, Washington, D. C. Photographs are included with the drawings. ALUMINUM CO. OF AMERICA, 1501 ALCOA BLDG., PITTSBURGH 19, PA.

Elevator belting—A new 24-pager describes and illustrates the types of belt bucket elevators, gives factors for belt selection, outlines procedures for engineering the correct belt, and describes belt construction features. The engineering handbook also includes a section devoted to belt installation. Data tables refer to weights of materials handled, holding properties of various fabrics, determining belt weight and thickness, drive factors, sines of elevator slope angles, belt speed, belt plies needed for tension requirement, pulley diameters. A suggested specification form is also included. THE B. F. GOODRICH CO, AKRON, OHIO.

Doors—A new 1954 catalog describes a line of big hangar and other doors for aviation and industry. The publication furnishes not only listings and illustrations of the company's products, but also gives information for engineers, architects and building management executives. It describes some of the company's designs for turnover, bi-fold and telescoping canopy doors for hangars; vertical lifts, slide, turnover and special-purpose doors. INTERNATIONAL STEEL CO., EVANSVILLE, IND.

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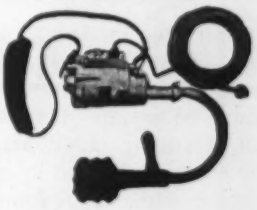

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EDITORIALS

Don't overlook erection stability

TWO RECENT erection failures on the San Francisco Peninsula make crystal clear the importance of lateral stability during construction. At Redwood City, Calif., the collapse of wooden roof trusses under temporary construction loading (ENR May 27, p. 27) probably could have been prevented by adequate bracing. And at San Mateo, Calif., a lift-slab failure during erection (ENR July 29, p. 25) is generally attributed to lateral failure of the temporary supporting columns.

In both these cases, the buildings would almost surely have been adequate after all elements were completed. But design dimensions were kept to a minimum in the interests of economy. And in both cases the extra-precautionary measures that this made necessary during construction unfortunately were not taken.

In general, it is up to the contractors involved to see that construction procedures are safe. That is part of the risk of being a contractor. Yet, in many instances, the designing architect or engineer also sees fit to advise as to safe erection methods. Safety is a cooperative responsibility. In the light of this fact, and to protect themselves, their employees and their clients, both designer and contractor should make sure that all elements of a structure have sufficient lateral stability during the erection period.

Sound start on road planning

IN RETROSPECT, three developments relating to highways at the recent Conference of Governors stand out as having special significance. The first, of course, is President Eisenhower's renewed support for an expanded highway building program. Its significance was discussed on this page in our issue of July 22. Without positive and aggressive leadership at the national level in working out a highway program on a scale demanded by current needs, progress toward a solution of the nation's major transportation problem will be spotty and uncoordinated.

But two other developments at the governors meeting may prove to be of value in attaining the President's objective. They are the governors' abandonment of their efforts to get the federal government to retire from the field of motor-fuel taxation and their decision to continue to look to the American Association of State Highway Officials for advice as to what type and size of road-building programs they should endorse. Both these steps are essential if costly delays and confusion are to be avoided.

It seems almost axiomatic that if this nation is to have an adequate national highway-building program, that program must be built around some form of federal assistance to the states. Such aid is needed to provide the incentive for them to accept standards set by the federal government acting through the Bureau of Public Roads. Possibly some form of federal assistance to the states can be devised to replace the present one that now is closely linked to the federal gas-tax income, but until it is, common sense points clearly to the need for continuation of the federal motor-fuel taxes.

Similarly, the governors' decision to continue to look to the American Association of State Highway Officials for advice as to their highway programs is a sensible step. That organization has done much in the past toward the development of sound national highway policies. Right now, when toll-road enthusiasts are busy promoting many projects that have not been carefully studied, the governors should profit by the advice of AASHO members who are trained to appraise each project on the basis of its place in a long-range plan rather than as an expedient to meet some temporary situation.

Electric brains for civil engineers

FANTASTIC ADVANCES have been made in recent years in the development of electronic computers. A digital-type computer at the National Bureau of Standards, for example, performs 16,000 additions or 2,600 multiplications per second. Analog computers solve in a few seconds complex mathematical problems that would require an army of men months to work out. It would seem that such machines could be more used than they have been by civil engineers.

In the structural field, for example, electronic computers might be employed to determine the effect of lateral forces—wind, earthquake and blast—on structures, to analyze complex floor systems and thin-shell roofs, to figure buckling and torsional stresses in beams and columns, to provide more data for limit-load design. In the highway field, they could be applied to analysis of traffic statistics, in hydraulics to flow in channels of complicated geometry, to flood probabilities and to water-supply distribution flows. In construction management, they might indicate how to make the most effective use of personnel and equipment for complex tasks.

The computers, however, are costly, and trained personnel are needed to operate them. They may be purchased or leased from a manufacturer, or the help of a firm or university owning one of the machines may be enlisted to solve a problem for a fee (ENR July 22, p. 62). Which method may be best, or whether some other means should be used, depends on the value of a solution of a particular problem in terms of hours and manpower saved and sometimes in terms of the degree of accuracy desired.

At present, no exact criteria can be set up to indicate if and when these master brains should be employed. Perhaps, they could be used to solve this problem, too.

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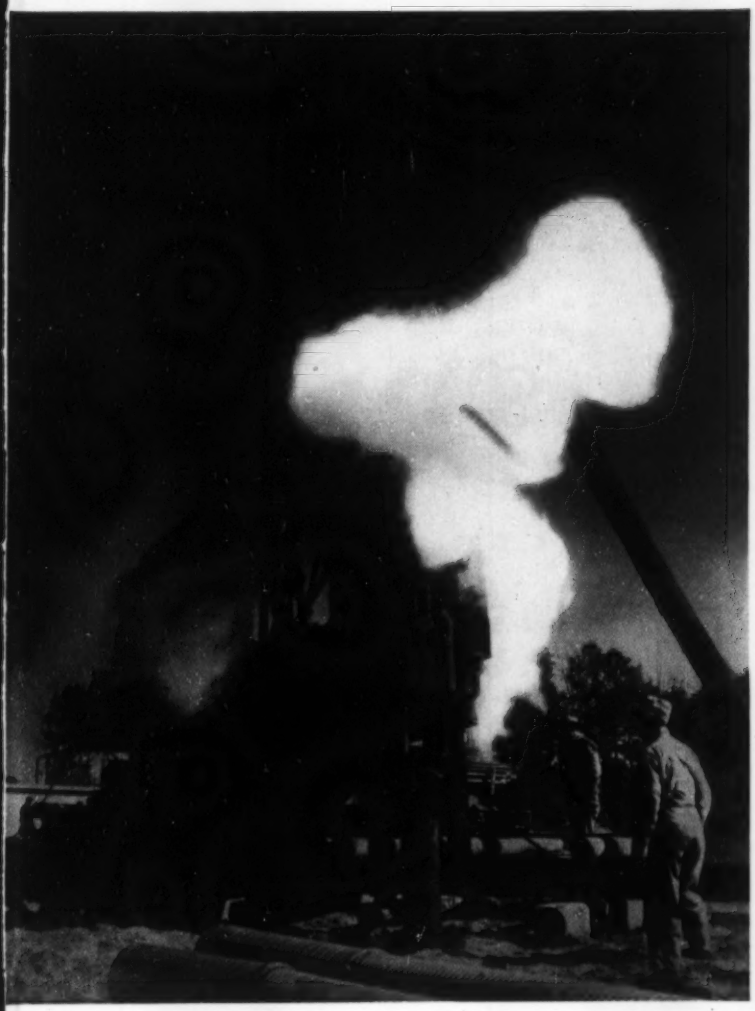

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Time. 10:05 A.M. The wire rope man at the distributor has taken the call and all the facts he needs — which machine and which line.

Time. 10.10 A.M. Exact specifications of the line that's needed is taken from Speedi-Service records of your machinery maintained by your distributor.

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